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Service Manual

Lexmark™ X548 Series

7525-63x

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Notices and safety information

The laser notice label may be affixed to this printer.

Laser notice

This product is certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for Class I (1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC 60825-1.

Class I laser products are not considered to be hazardous. The printer contains internally a Class IIIb (3b) AlGaInP laser producing visible radiation in the wavelength of 650-670 nanometers enclosed in a non-serviceable printhead assembly. The laser system and printer are designed so there is never any human access to laser radiation exceeding Class I levels during normal operation, user maintenance, or prescribed service condition.

Laser-Hinweis

Dieses Produkt ist in den USA zertifiziert und entspricht den Anforderungen der Vorschriften DHHS 21 CFR Unterkapitel J für Laserprodukte der Klasse I (1), andernorts ist er als Laserprodukt der Klasse I zertifiziert, das den Anforderungen von IEC 60825-1 entspricht.

Laserprodukte der Klasse I werden nicht als gefährlich betrachtet. Der Drucker enthält im Inneren einen Laser der Klasse IIIb (3b) AlGaInP, der sichtbare Strahlung im Wellenlängenbereich von 650 bis 670 Nanometern abgibt. Dieser befindet sich in einer Druckkopfeinheit, die nicht gewartet werden kann. Das Lasersystem und der Drucker sind so konstruiert, dass unter normalen Betriebsbedingungen bei der Wartung durch den Benutzer oder bei den vorgeschriebenen Wartungsbedingungen Menschen keiner Laserstrahlung ausgesetzt sind, die die Werte für Klasse I überschreitet.

Avis relatif à l’utilisation de laser

Ce produit est certifié conforme aux exigences de la réglementation des Etats-Unis relative aux produits laser (DHHS 21 CFR Sous-chapitre J pour Classe I (1)). Pour les autres pays, il est certifié conforme aux exigences des normes CEI 60825-1 relatives aux produits laser de classe I.

Les produits laser de Classe I ne sont pas considérés comme dangereux. L'imprimante contient un laser de Classe IIIb (3b) AlGaInP qui produit des radiations visibles opérant sur une longueur d'onde de l'ordre de 650 à 670 nanomètres au sein d'un boîtier non démontable de la tête d'impression. Le système laser et l'imprimante ont été conçus de manière à ce que personne ne soit jamais exposé à des radiations laser dépassant le niveau de classe I dans le cadre d'un fonctionnement normal, de l'entretien par l'utilisateur ou de la maintenance.

Avvertenze sui prodotti laser

Questo prodotto è certificato negli Stati Uniti come prodotto conforme ai requisiti DHHS 21 CFR Sottocapitolo J per i prodotti laser di Classe I (1), mentre in altri paesi è certificato come prodotto laser di Classe I conforme ai requisiti IEC 60825-1.

I prodotti laser di Classe I non sono considerati pericolosi. La stampante contiene un laser Classe IIIb (3b) AlGaInP che emette una radiazione visibile a una lunghezza d'onda di 650-670 nanometri all'interno dell'unità testina di stampa non sottoponibile a manutenzione. Il sistema laser e la stampante sono stati progettati in modo da impedire l'esposizione a radiazioni laser superiori al livello previsto dalla Classe I durante le normali operazioni di stampa, manutenzione o assistenza.

Avisos sobre el láser

Este producto se ha certificado en EE.UU. cumpliendo con los requisitos de DHHS 21 CFR subcapítulo J para los productos láser de Clase I (1) y en otros países está certificada como un producto láser de Clase I de acuerdo con los requisitos de IEC 60825-1.

Los productos láser de Clase I no se consideran peligrosos. Este producto contiene un láser interno de Clase IIIb (3b) AlGaInP que produce una radiación visible en una longitud de onda de 650-670 nanómetros cerrado en un conjunto de cabezal de impresión que no se puede reparar. El sistema láser y la impresora se han diseñado para que el ser humano no acceda nunca a las radiaciones láser por encima del nivel de Clase I durante el funcionamiento normal, mantenimiento del usuario o condición de servicio prescrita.

Declaração sobre Laser

Este produto foi certificado nos EUA por estar em conformidade com os requisitos do DHHS 21 CFR, subcapítulo J, para produtos a laser de Classe I (1) e, nos demais países, foi certificado como um produto a laser de Classe I em conformidade com os requisitos da IEC 60825-1.

Os produtos a laser de Classe I não são considerados prejudiciais. A impressora contém, internamente, um laser de Classe IIIb (3b) AlGaInP que produz radiação visível no comprimento de onda de 650-670 nanômetros incluso em um conjunto do cabeçote de impressão cuja manutenção não é facilitada. O sistema do laser e a impressora foram projetados para que jamais haja acesso humano à radiação do laser acima dos níveis da Classe I durante a operação normal ou a manutenção pelo usuário ou sob as condições de manutenção prescritas.

Aviso sobre o laser

Nos E.U.A., este produto está classificado como estando em conformidade com os requisitos DHHS 21 CFR, Subcapítulo J, para produtos laser de Classe I (1) e, nas restantes regiões, está classificado como um produto de Classe I, estando em conformidade com os requisitos IEC 60825-1.

Os produtos laser de Classe I não são considerados perigosos. A impressora possui, no seu interior, um laser de Classe IIIb (3b) AlGaInP que produz radiação num comprimento de onda de 650-670 nanómetros. Este encontra-se fechado no conjunto da cabeça de impressão, que não é passível de manutenção. O sistema de laser e a impressora estão concebidos de forma a que nunca haja acesso humano à radiação laser que excede os níveis correspondentes à Classe I durante o funcionamento normal, manutenção ou em condições de assistência recomendada.

Laserinformatie

Dit product is in de Verenigde Staten gecertificeerd als een product dat voldoet aan de vereisten van DHHS 21 CFR paragraaf J voor laserproducten van klasse I (1). Elders is het product gecertificeerd als een laserproduct van klasse I dat voldoet aan de vereisten van IEC 60825-1.

Laserproducten van klasse I worden geacht geen gevaar op te leveren. De printer bevat intern een laser van klasse IIIb (3b) AlGaInP die zichtbare straling produceert in een golflengtebereik van 650-670 nanometer in een niet-bruikbare printkopeenheid. Het lasersysteem en de printer zijn zodanig ontworpen dat gebruikers nooit blootstaan aan laserstraling die hoger is dan het toegestane niveau voor klasse I-apparaten, tijdens normaal gebruik, onderhoudswerkzaamheden door de gebruiker of voorgeschreven servicewerkzaamheden.

Lasermeddelelse

Dette produkt er certificeret i USA i henhold til kravene i DHHS 21 CFRi underafsnit J for klasse I (1)-laserprodukter og er andre steder certificeret som et klasse I laserprodukt i henhold til kravene i IEC 60825-1.

Klasse I-laserprodukter er ikke anset som farlige. Printeren indeholder en intern klasse IIIb (3b) AlGaInP-laser, der producerer synlig stråling med en bølgelængde på 650-670 nanometer, indkapslet i en ikke-servicerbar printhovedsamling. Lasersystemet og printeren er udviklet på en sådan måde, at der ikke er en direkte laserstråling, der overskrider Klasse I-niveauet under normal brug, brugers vedligeholdelse eller de foreskrevne servicebetingelser.

Laserilmoitus

Tämä tuote on sertifioitu Yhdysvalloissa DHHS 21 CFR Subchapter J -standardin mukaiseksi luokan I (1) -lasertuotteeksi ja muualla IEC 60825-1 -standardin mukaiseksi luokan I lasertuotteeksi.

Luokan I lasertuotteita ei pidetä haitallisina. Laitteen tulostuspääkokoonpanossa (ei huollettavissa) on sisäänrakennettu luokan IIIb (3b) AlGaInP -laser, joka tuottaa silminnähtävää säteilyä 650-670 nanometrin aallonpituudella. Laserjärjestelmä ja tulostin ovat rakenteeltaan sellaisia, että käyttäjä ei joudu alttiiksi luokkaa 1 suuremmalle säteilylle normaalin käytön, ylläpidon tai huollon aikana.

Huomautus laserlaitteesta

Tämä tuote on sertifioitu Yhdysvalloissa DHHS 21 CFR Subchapter J -standardin mukaiseksi luokan I (1) -lasertuotteeksi ja muualla IEC 60825-1 -standardin mukaiseksi luokan I lasertuotteeksi.

Luokan I lasertuotteita ei pidetä haitallisina. Laitteen tulostuspääkokoonpanossa (ei huollettavissa) on sisäänrakennettu luokan IIIb (3b) AlGaInP -laser, joka tuottaa silminnähtävää säteilyä 650-670 nanometrin aallonpituudella. Laserjärjestelmä ja tulostin ovat rakenteeltaan sellaisia, että käyttäjä ei joudu alttiiksi luokkaa 1 suuremmalle säteilylle normaalin käytön, ylläpidon tai huollon aikana.

Laser-notis

Denna produkt är certifierad i USA i enlighet med kraven i DHHS 21 CFR underkapitel J för klass I (1)-laserprodukter, och på andra platser certifierad som en klass I-laserprodukt i enlighet med kraven i IEC 60825-1.

Klass I-laserprodukter betraktas inte som skadliga. Skrivaren innehåller en klass IIIb (3b) AlGaInP-laser som producerar synlig strålning inom våglängden 650-670 nm, innesluten i en icke-servicebar skrivhuvudenhet. Lasersystemet och skrivaren är utformade så att människor aldrig utsätts för laserstrålning som överskrider klass I-nivåerna under normala förhållanden vid användning, underhåll eller service.

Laser-melding

Dette produktet er sertifisert i USA for samsvar med kravene i DHHS 21 CFR, underkapittel J for laserprodukter av klasse I (1) og er andre steder sertifisert som et laserprodukt av klasse I som samsvarer med kravene i IEC 60825-1.

Laserprodukter av klasse I anses ikke som helseskadelige. Skriveren inneholder en intern AlGaInP-laser av klasse IIIb (3b) som produserer synlig stråling i bølgelender på 650–670 nanometer i en ikke-reparerbar skrivehodeenhet. Lasersystemet og skriveren er utformet slik at mennesker ikke utsettes for laserstråling utover nivåene i klasse I under normal drift, vedlikehold eller foreskrevet service.

Aviso de láser

Este producto está certificado en Estados Unidos para el cumplimiento de los requisitos estipulados en DHHS 21 CFR Subcapítulo J para productos láser de Clase I (1), y cuenta con certificación para otros países como producto láser de Clase I de conformidad con los requisitos de IEC 60825-1.

Los productos láser de Clase I no se consideran peligrosos. La impresora contiene en su interior radiación láser visible AlGaInP Clase IIIb (3b) en la longitud de onda de 650 - 670 nanómetros dentro de un mecanismo de cabezal de impresión que no requiere servicio técnico. La impresora y el sistema láser están diseñados de forma tal que no exista nunca acceso humano a radiación láser que supere los niveles de Clase I durante el funcionamiento normal, las tareas de mantenimiento por parte del usuario o las condiciones de servicio técnico estipuladas.

レーザー通知

本製品は、米国においてクラス 1（1）レーザー製品に対する DHHS 21 CFR Subchapter J の要件に準拠し、その他の国では IEC 60825-1 の要件に準拠するクラス 1 レーザー製品として認可されています。
クラス 1 レーザー製品は、危険性がないとみなされています。プリンタ内部には、波長が 650～670 ナノメートルの可視放射を発するクラス IIIb（3b）AlGaInP レーザー装置が搭載されており、整備不可のプリンタヘッドアセンブリに収容されています。レーザーシステムとプリンタは、通常の操作、ユーザによるメンテナンス、または所定のサービス条件の下で、ユーザがクラス 1 レベルを超えるレーザー放射に絶対にさらされないように設計されています。

激光通知

本打印机在美国认证合乎 DHHS 21 CFR Subchapter J 对分类 1（1）激光产品的标准，而在其他地区则被认证是合乎 IEC 60825-1 的分类 1 激光产品。一般认为分类1激光产品不具有危险性。本打印机内部含有分类 IIIb（3b）AlGaInP 的激光，封装在不可维修的打印头配件中，会产生波长范围在 650-670nm 之间的可见放射线。本激光系统及打印机的设计，在一般操作、使用者维护或规定内的维修情况下，不会使人体接触分类1以上等级的辐射。

激光通知

本產品係經過美國核可，符合 DHHS 21 CFR 二級規章之 J 級 1 (1) 規定及 IEC 60825-1 規定的 1 級雷射產品。根據 1 級雷射產品的規定，這類產品不會對人體造成傷害。本印表機內部所採用之 IIIb (3b) 級 AlGaInP 雷射所產生的可見放射線含括在其作用波長為 650-670 奈米 (nanometer) 的不可修復列印頭組件中。使用者只要以正確的方法操作及維護保養，並依照先前所述之維修方式進行修護，此印表機與其雷射系統絕不會產生 1 級以上的放射線，而對人體造成傷害。

레이저 통지

본 제품은 미국에서 레이저 제품용 DHHS 21 CFR Subchapter J의 요구 사항을 준수하며 이외 지역에서 IEC 60825-1의 요구 사항을 준수하는 클래스 1(1) 레이저 제품으로 승인되었습니다. 클래스 1 레이저 제품은 위험한 제품으로 간주되지 않습니다. 프린터에는 650-670 나노미터의 파장 영역에서 가시 방사를 방출하며 서비스 불가능한 프린터 헤드 부품에 밀봉된 레이저인 클래스 IIIb(3b) AlGaInP 레이저가 내부에 포함되어 있습니다. 레이저 시스템과 프린터는 정상적인 작동, 사용자 유지 관리 또는 사전 설명된 서비스 조건에는 사람에게 클래스 1 수준 이상의 레이저 방사가 노출되지 않도록 설계되었습니다.

Lithium warning

CAUTION

This product contains a lithium battery. THERE IS A RISK OF EXPLOSION IF THE BATTERY IS REPLACED BY AN INCORRECT TYPE. Discard used batteries according to the battery manufacturer's instructions and local regulations.

Safety information

- The safety of this product is based on testing and approvals of the original design and specific components. The manufacturer is not responsible for safety in the event of use of unauthorized replacement parts.
- The maintenance information for this product has been prepared for use by a professional service person and is not intended to be used by others.
- There may be an increased risk of electric shock and personal injury during disassembly and servicing of this product. Professional service personnel should understand this and take necessary precautions.
- **CAUTION:** When you see this symbol, there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.

Consignes de sécurité

- La sécurité de ce produit repose sur des tests et des agréations portant sur sa conception d'origine et sur des composants particuliers. Le fabricant n'assume aucune responsabilité concernant la sécurité en cas d'utilisation de pièces de rechange non agréées.
- Les consignes d'entretien et de réparation de ce produit s'adressent uniquement à un personnel de maintenance qualifié.
- Le démontage et l'entretien de ce produit pouvant présenter certains risques électriques, le personnel d'entretien qualifié devra prendre toutes les précautions nécessaires.
- **ATTENTION :** Ce symbole indique la présence d'une tension dangereuse dans la partie du produit sur laquelle vous travaillez. Débranchez le produit avant de commencer ou faites preuve de vigilance si l'exécution de la tâche exige que le produit reste sous tension.

Norme di sicurezza

- La sicurezza del prodotto si basa sui test e sull'approvazione del progetto originale e dei componenti specifici. Il produttore non è responsabile per la sicurezza in caso di sostituzione non autorizzata delle parti.
- Le informazioni riguardanti la manutenzione di questo prodotto sono indirizzate soltanto al personale di assistenza autorizzato.
- Durante lo smontaggio e la manutenzione di questo prodotto, il rischio di subire scosse elettriche e danni alla persona è più elevato. Il personale di assistenza autorizzato deve, quindi, adottare le precauzioni necessarie.
- **ATTENZIONE:** Questo simbolo indica la presenza di tensione pericolosa nell'area del prodotto. Scollegare il prodotto prima di iniziare o usare cautela se il prodotto deve essere alimentato per eseguire l'intervento.

Sicherheitshinweise

- Die Sicherheit dieses Produkts basiert auf Tests und Zulassungen des ursprünglichen Modells und bestimmter Bauteile. Bei Verwendung nicht genehmigter Ersatzteile wird vom Hersteller keine Verantwortung oder Haftung für die Sicherheit übernommen.
- Die Wartungsinformationen für dieses Produkt sind ausschließlich für die Verwendung durch einen Wartungsfachmann bestimmt.
- Während des Auseinandernehmens und der Wartung des Geräts besteht ein zusätzliches Risiko eines elektrischen Schlags und körperlicher Verletzung. Das zuständige Fachpersonal sollte entsprechende Vorsichtsmaßnahmen treffen.
- **ACHTUNG:** Dieses Symbol weist auf eine gefährliche elektrische Spannung hin, die in diesem Bereich des Produkts auftreten kann. Ziehen Sie vor den Arbeiten am Gerät den Netzstecker des Geräts, bzw. arbeiten Sie mit großer Vorsicht, wenn das Produkt für die Ausführung der Arbeiten an den Strom angeschlossen sein muß.

Pautas de Seguridad

- La seguridad de este producto se basa en pruebas y aprobaciones del diseño original y componentes específicos. El fabricante no es responsable de la seguridad en caso de uso de piezas de repuesto no autorizadas.
- La información sobre el mantenimiento de este producto está dirigida exclusivamente al personal cualificado de mantenimiento.
- Existe mayor riesgo de descarga eléctrica y de daños personales durante el desmontaje y la reparación de la máquina. El personal cualificado debe ser consciente de este peligro y tomar las precauciones necesarias.
- **PRECAUCIÓN:** este símbolo indica que el voltaje de la parte del equipo con la que está trabajando es peligroso. Antes de empezar, desenchufe el equipo o tenga cuidado si, para trabajar con él, debe conectarlo.

Informações de Segurança

- A segurança deste produto baseia-se em testes e aprovações do modelo original e de componentes específicos. O fabricante não é responsável pela segunrança, no caso de uso de peças de substituição não autorizadas.
- As informações de segurança relativas a este produto destinam-se a profissionais destes serviços e não devem ser utilizadas por outras pessoas.
- Risco de choques eléctricos e ferimentos graves durante a desmontagem e manutenção deste produto. Os profissionais destes serviços devem estar avisados deste facto e tomar os cuidados necessários.
- **CUIDADO:** Quando vir este símbolo, existe a possível presença de uma potencial tensão perigosa na zona do produto em que está a trabalhar. Antes de começar, desligue o produto da tomada eléctrica ou seja cuidadoso caso o produto tenha de estar ligado à corrente eléctrica para realizar a tarefa necessária.

Informació de Seguretat

- La seguretat d'aquest producte es basa en l'avaluació i aprovació del disseny original i els components específics.
  El fabricant no es fa responsable de les qüestions de
  seguretat si s'utilitzen peces de recanvi no autoritzades.
- La informació pel manteniment d'aquest producte està orientada exclusivament a professionals i no està destinada
  a ningú que no ho sigui.
- El risc de xoc elèctric i de danys personals pot augmentar durant el procés de desmuntatge i de servei d'aquest producte. El personal professional ha d'estar-ne assabentat i prendre
  les mesures convenients.
-
  PRECAUCIÓ: aquest símbol indica que el voltatge de la part de l'equip amb la qual esteu treballant és perillós. Abans de començar, desendolleu l'equip o extremeu les precaucions si, per treballar amb l'equip, l'heu de connectar.

안전 사항

- 본 제품은 원래 설계 및 특정 구성품에 대한 테스트 결과로 안정성이 입증된 것입니다. 따라서 무허가 교체부품을 사용하는 경우에는 제조업체에서 안전에 대한 책임을 지지 않습니다.
- 본 제품에 관한 유지 보수 설명서는 전문 서비스 기술자 용으로 작성된 것이므로, 비 전문가는 사용할 수 없습니다.
- 본 제품을 해체하거나 정비할 경우, 전기적인 충격을 받거나 상처를 입을 위험이 커집니다. 전문 서비스 기술자는 이 사실을 숙지하고, 필요한 예방 조치를 취하도록 하십시오.
-
  주의: 이 표시는 해당영역에서 고압전류가 흐른다는 위험 표시 입니다. 시작전에 플러그를 뽑으시거나, 주의를 기울여 주시기 바랍니다.

安全信息

- 本产品的安全性以原来设计和特定产品的测试结果和认证为基础。万一使用未经许可的替换部件，制造商不对安全性负责。
- 本产品的维护信息仅供专业服务人员使用，并不打算让其他人使用。
- 本产品在拆卸、维修时，遭受电击或人员受伤的危险性会增高，专业服务人员对这点必须有所了解，并采取必要的预防措施。
-
  切记：当您看到此符号时，说明在您工作的产品区域有危险电压的存在。请在开始操作前拔掉产品的电源线，或者在产品必须使用电源来执行任务时，小心从事。

Preface

This manual contains maintenance procedures for service personnel. It is divided into the following chapters:

1. **General information** contains a general description of the printer and the maintenance approach used to repair it. Special tools and test equipment, as well as general environmental and safety instructions, are discussed.
2. **Diagnostic information** contains an error indicator table, symptom tables, and service checks used to isolate failing field replaceable units (FRUs).
3. **Diagnostic aids** contains tests and checks used to locate or repeat symptoms of printer problems.
4. **Repair information** provides instructions for making printer adjustments and removing and installing FRUs.
5. **Locations** uses illustrations to identify the connector locations and test points on the printer.
6. **Preventive maintenance** contains the lubrication specifications and recommendations to prevent problems.
7. **Parts catalog** contains illustrations and part numbers for individual FRUs.

Change history

Revision date	Updates
2013/07/31	Updated 40X5468 to 40X8092 and 40x5492 to 40X8342.
2013/01/16	Added installation note to perform Motor detect test and Scanner manual registration after replacing the RIP board.
2012/09/19	Changed ADF separator pad PN from 40X5472 to 40X8419.
2012/09/17	Added PN 40X8674 (Front toner-door pivot) to **“Paperpath” on page 7-9**.
2012/08/31	• Added installation note: **“Install the narrow media sensor flag before reinstalling the flatbed.” on page 4-12**. • Added installation note “Install the narrow media sensor flag to the fuser before putting the fuser into the printer.” on **page 4-35**.

Conventions

Note: A note provides additional information.

Warning: A warning identifies something that might damage the product hardware or software.

There are several types of caution statements:

	CAUTION A caution identifies something that might cause a servicer harm.

	CAUTION This type of caution indicates there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.

	CAUTION This type of caution indicates a hot surface.

1. General information

The Lexmark™ X548 Series MFPs combine print, scan, copy, and fax functions. They are the ideal MFPs for presentations, business graphics, line art, and text. They use laser diode electrophotographic technology to deliver remarkable quality print images and text. The scan and copy functions work with A4, letter, and legal (ADF only) size paper. Photographic quality images are possible with scan function. The fax function delivers a wide range of functionality to the office user. The MFPs can be used as shared network or desktop devices. The MFPs can also support a 550-sheet option while the 650-sheet duo drawer is attached.

Models

The Lexmark X548 Series MFPs are available in the following models:

Model	Configuration	Machine type / model
X548de	Duplex printer, duplex ADF, touch panel	7525-631
X548de	Duplex printer, duplex ADF, touch panel, modem	7525-630
X548dte	Duplex printer, duplex ADF, touch panel, hard drive	7525-636
X548dte	Duplex printer, duplex ADF, touch panel, hard drive, modem	7525-632

Options and features

Certain options are available on selected printer models only.

Available options include:

- 650-sheet duo drawer—A 550-sheet drawer with a 100-sheet multipurpose feeder (MPF).
- 550-sheet drawer
- Additional memory—One 128MB, 256MB, 512MB or 1GB memory card may be added.
- Flash memory card—One 256MB card may be added.
- Font cards—One language card can be added.

Memory

Memory	
Optional slots	One slot
Standard DIMM sizes	512MB
Optional (DDR2)	256MB, 512MB and 1GB
Maximum printer memory	1536MB
Flash memory	256MB
Option Slots (single slot is available for either font or flash memory card)	
Font card support	1 font card
Optional user flash memory card sizes	256MB
Connections	
USB 2.0 High Speed Ethernet 10/100 BaseTx USB-A (allows direct USB printing using approved USB flash memory device) PictBridge (allows printing photos directly from a compatible camera)	

Print quality

During the life of the printer, components are subject to wear based on usage. Printers continuously operating at or near the maximum duty cycle may require service for replacement of these components to ensure high-quality printing and good performance throughout the life of the printer. Replacement is recommended every 60,000 pages for the fuser and 60,000 pages for the ITU. The fuser and ITU replacement should be determined by checking the last sheet of the Menu Settings Page. Either **OK** or **Replace** appears.

To print a Menu Settings page from the home screen, navigate to:

> Reports > Menu Settings Page

Replacement is recommended every 30,000 pages for the imaging unit.

- 4800 CQ (default) full printer speed
- 1200 dpi (reduced printer speed) is supported in PS and PCL only

Connectivity (network support)

Network protocol supported
Standard Ethernet 10/100 Base T **Standard USB-B (Full speed) device port** **USB-A host ports** (In front, low/full speed) This port only supports the following flash drives and file types: - Supported flash drives: Lexar Jump Drive 2.0 Pro (256/512MB/1GB size) or SanDisk Cruzer Mini (256/512MB/1GB size) - Supported file types: .pdf, .gif, .jpeg, .jpg, .bmp, .png, .tiff, .tif, .pcx, .dcx **USB direct drive** Scan and print (Select formats)

Operating modes

Mode	Description
Normal	Factory default
Quiet	Designed for customers where noise levels are a very important factor. • Print quality is maintained at factory default level. • Speed is reduced.
Eco-Mode (Off is default):	Designed for customers where the environment is a key factor. There are three options; Energy, Paper, and Energy/Paper. Paper: • Duplex is on if **Energy/Paper** or **Paper** is selected (duplex models only) (can be overwritten by the driver). Energy: • Print quality is maintained. • Power Saver is set to one minute. • Fuser standby is off. • The operator panel back light is off. • Power supply energy consumption is reduced. Energy + Paper: *Settings associated with Energy mode plus duplex are enabled.

Data streams

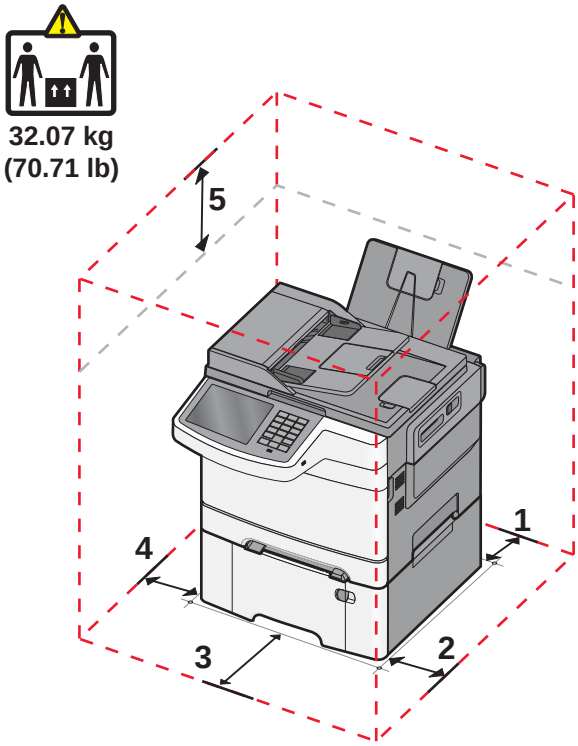
✔—Supported ✘—Not supported **Data streams**	**Lexmark X548**
PCL 6 emulation	✔
PostScript Level III emulation Version 3011 of the Adobe definition of PostScript 3 is supported.	✔
PDF Supports version 1.6	✔
PPDS By default, the PPDS interpreter is inactive. A user can activate the data stream by PJL or by the **PPDS Emulation** setting in the Configuration Menu.	✔
PictBridge	✔
Directimage Devices that support Directimage support all of the following graphics formats: TIFF, TIF, JPEG, JPG, GIF, PNG, BMP, PCX, and DCX.	✔

✔—Supported ✘—Not supported **Data streams**	**Lexmark X548**
Host-Based Printing (HBP)/ Graphics Device Interface (GDI) Version 3 (color) uses PCL XL	✔
XPS	✔
HTML	✔

Dimensions

Model	Height	Width	Depth	Weight
Lexmark X548de	463 mm (18.2 in.)	440 mm (17.3 in.)	597 mm (23.5 in.)	27.8 kg (61.3 lb)
Lexmark X548dte	597 mm (23.5 in.)	440 mm (17.3 in.)	597 mm (23.5 in.)	32.1 kg (70.7 lb)
550-sheet duo drawer	133 mm (5.2 in.)	424 mm (16.7 in.)	416 mm (16.4 in.)	4.3 kg (9.4 lb)
650-sheet duo drawer	133 mm (5.2 in.)	424 mm (16.7 in.)	416 mm (16.4 in.)	4.3 kg (9.4 lb)

Clearances



	Description	Clearances
1	Rear	102 mm (4 in.)
2	Right side	508 mm (20 in.)
3	Front	152 mm (6 in.)
4	Left side	76 mm (3 in.)
5	Top	254 mm (10 in.)

Power and electrical specifications

The following table specifies nominal average power requirements for the base printer configurations. All power levels are shown in Watts (W). Maximum current is given in Amperes (A).

Printing states	
Off	0.2 W
Sleep state	23 W
Ready state	50 W
Simplex printing	540 W
Duplex printing	380 W
Copying	530 W
ADF scanning	60 W
Typical electricity consumption test	5.13 kWh/week
Maximum (ave.) current while printing: 100–110 V 115–127 V 220–240 V	 8.2 A 7.2 A 3.6 A

Low-voltage models

- 100–127 V (100–110 Japan) at 50–60 Hz, nominal
- 90–137 V (90–110 Japan), extreme

100-volt models

- 100 V ac at 47–63 Hz nominal
- 90–110 V ac, extreme

High-voltage models

- 220–240 V ac at 50–60 Hz nominal (not available in all countries)
- 198–259 V ac, extreme

Notes:

- Using a 220 V ac to 110 V ac power converter with a low voltage printer is not recommended.
- Using an inverter to change DC to AC voltage (12 V to 120 V for example) is not recommended.
- All X54x MFP models will comply with the ENERGY STAR.
- All models ship with Power Saver Mode = On.
- The default timeout to Power Saver = 60 minutes (220 V).
- Power Saver can be adjusted to 1–240 minutes.
- Power Saver mode cannot be disabled from the operator panel.

Acoustics

All acoustic measurements are made in accordance with ISO 7779-1999 and reported in conformance with ISO9296:1988-04-15.

Operating mode	Declared sound pressure level
Idle (standby mode)	23 dB
Simplex printing (mono)	47 dB
Simplex printing (color)	48 dB
Duplex printing (mono)	49 dB
Duplex printing (color)	50 dB
ADF scan (mono)	46 dB
ADF scan (color)	45 dB
ADF copy (mono)	50 dB
ADF copy (color)	51 dB
Quiet mode simplex printing (mono)	46 dB
Quiet mode simplex printing (color)	46 dB
Quiet mode duplex printing (mono)	47 dB
Quiet mode duplex printing (color)	48 dB

Environment specifications

Environment	Specifications
Operating	
Air temperature—operating	16–32°C (60–90°F)
Air temperature—power off	10–43°C (50–110°F)
Air relative humidity	8–80%RH
Wet bulb temperature—operating	23°C (73°F) maximum
Web bulb temperature—power off	27°C (80°F) maximum
Altitude	0–3,048 m (10,000 ft)
Atmospheric pressure	less than 74.6 kPa
Ambient operating environment*	15–32°C (60–90°F) and 8–80%RH
Ship / Storage	
Cartridges	-40–43°C (110°F)
Printer with cartridges	-40–43°C (110°F)
Printer without cartridges	-40–43°C (110°F)
Air relative humidity	8–80% RH
Altitude	less than 10,300 m (34,000 ft)
Web bulb temperature—power off	27°C (80°F) maximum
* In some cases performance specifications (such as paper OCF, EP cartridge usage) are specified to be measured at an ambient condition.	

Media handling

Input and output sources

Sheet numbers are assuming 20-lb xerographic paper	
Standard input sources	
Standard input tray (250-sheet tray)	250 sheets
Manual feed slot (1-sheet)	1
Second tray capacity (650-sheet duo drawer)	550 sheets
Multipurpose tray capacity (650-sheet duo drawer)	100 sheets
Optional 550-sheet drawer	550 sheets
Optional input sources (maximum 1, total of all inputs is 4)	
650-sheet duo drawer[a] (includes 100-sheet MP feeder)	550 sheets (or 100 sheets in MP feeder)
Multipurpose tray capacity (650-sheet duo drawer)	100 sheets
Optional third tray capacity (550 sheets)	550 sheets (tray 3)
Maximum total input capacity	1451
Duplex	
Type of duplex	Integrated duplex
Standard output sources (no optional output sources are available)	
Standard 100-sheet bin	100
[a] In the 650-sheet duo drawer, the 550-sheet tray and the integrated MP feeder count as two independent input sources. The MF feeder is configured as “cassette” does not show up as Configure MP in the Paper Menu.	

Duplex capability

✔—Supported **Models**	**Duplex Type** **Automatic duplex**
Lexmark X548dte	✔

Media input size specifications

✔—Supported **without** size sensing ✘—Not supported **Input source**	**250-sheet tray**	**Optional 650-sheet duo drawer**	**Optional 550-sheet tray**	**MP feeder[a] (in the 650-sheet duo drawer)**	**Manual slot**	**Duplex**
A4 210 x 297 mm (8.3 x 11.7 in.)	✔	✔	✔	✔	✔	✔
A5[a] 148 x 210 mm (5.83 x 8.3 in.)	✔	✔	✔	✔	✔	✘
A6 105 x 148 mm (4.1 x 5.8 in.)	✘	✘	✘	✔	✔	✘
JIS[b] **B5**[a] 182 x 257 mm (7.2 x 10.1 in.)	✔	✔	✔	✔	✔	✔
Letter 216 x 279 mm (8.5 x 11 in.)	✔	✔	✔	✔	✔	✔
Legal 216 x 356 mm (8.5 x 14 in.)	✔	✔	✔	✔	✔	✔
Executive[a] 184 x 267 mm (7.3 x 10.5 in.)	✔	✔	✔	✔	✔	✘
Oficio (Mexico) 216 x 340 mm (8.5 x 13 in.)	✔	✔	✔	✔	✔	✔
Folio 216 x 330 mm (8.5 x 13 in.)	✔	✔	✔	✔	✔	✔
Statement[a] 140 x 216 mm (5.5 x 8.5 in.)	✘	✘	✘	✔	✔	✘
Universal[c] 148 x 210 mm to 216 x 356 mm (5.8 x 8.3 in. to 8.5 x 14 in.)[a]	✔	✔	✔	✔	✔	✘
76 x 127 mm to 216 x 356 mm (3 x 5 in. to 8.5 x 14 in.)[a]	✘	✘	✘	✔	✔	✘

✔—Supported **without** size sensing ✘—Not supported **Input source**	**250-sheet tray**	**Optional 650-sheet duo drawer**	**Optional 550-sheet tray**	**MP feeder[a] (in the 650-sheet duo drawer)**	**Manual slot**	**Duplex**
7¾ Envelope[a] 98 x 191 mm (3.9 x 7.5 in.)	✘	✘	✘	✔	✔	✘
9 Envelope[a] 98 x 225 mm (3.9 x 8.9 in.)	✘	✘	✘	✔	✔	✘
10 Envelope[a] 105 x 241 mm (4.12 x 9.5 in.)	✘	✘	✘	✔	✔	✘
DL Envelope[a] 110 x 220 mm (4.3 x 8.7 in.)	✘	✘	✘	✔	✔	✘
C5 Envelope[a] 162 x 229 mm (6.4 x 9 in.)	✘	✘	✘	✔	✔	✘
B5 Envelope[a] 176 x 250 mm (6.9 x 9.8 in.)	✘	✘	✘	✔	✔	✘
Other envelope[a] 98 x 162 mm to 176 x 250 mm (3.9 x 6.3 in. to 6.9 x 9.8 in.)	✘	✘	✘	✔	✔	✘

[a] The MP feeder runs slower if A5, Statement, B5, A6, Executive, Statement, Universal (narrower than 210mm), or envelopes are loaded.

[b] Japanese Industry Standard.

[c] Although the user may select Universal paper size for these sources, not all tray guides can be adjusted to all Universal media sizes.

Media input type specifications

✔—Supported ✘—Not supported **Input type**	**250-sheet tray**	**Optional 650-sheet duo drawer**	**Optional 550-sheet drawer**	**MP feeder (in 650-sheet duo drawer)**	**Manual feeder[a]**	**Duplex**
Plain paper	✔	✔	✔	✔	✔	✔
Card stock	✔	✔	✔	✔	✔	✘
Transparency	✔	✔	✘	✔	✔	✘
Recycled[b]	✔	✔	✔	✔	✔	✔
Glossy	✔	✔	✔	✔	✔	✔
Paper-backed labels	✔	✔	✔	✔	✔	✔
Bond	✔	✔	✔	✔	✔	✔
Envelopes	✘	✘	✘	✔	✔	✘
Rough envelopes	✘	✘	✘	✔	✔	✘
Letterhead	✔	✔	✔	✔	✔	✔
Preprinted	✔	✔	✔	✔	✔	✔
Colored	✔	✔	✔	✔	✔	✔
Light	✔	✔	✔	✔	✔	✔
Heavy	✔	✔	✔	✔	✔	✔
Rough or cotton	✔	✔	✔	✔	✔	✔
Custom type <*x*>[b]	✔	✔	✔	✔	✔	✔

[a] For MP feeder and manual feeders, the Default Source Menu displays `Manual Paper` and `Manual Env.`. Select **Manual Env.** for envelopes or when the type in Custom Type <x> is an envelope. For other types, use **Manual Paper**.

[b] The duplex unit supports this media type as long as the customer has selected the custom type from those types the duplex unit supports.

Media output size and type

There is a single 100-sheet output bin available for this printer and no additional output options.

Weight ranges for each media type

Material	Type	Weight	Select
Paper [2, 5, 7, 8]	Xerographic or business paper	60 to 74. 9 g/m^2 grain long (16 to 19.9 lb bond) [2, 5]	Light Paper
		75 to 89.9 g/m^2 grain long (20 to 23.8 lb bond)	Plain Paper
		90. to 104.9 g/m^2 grain long (23.9 to 27.8 lb bond)	Heavy Paper
		105 to 176 g/m^2 grain long (27.9 to 47 lb bond) [7]	Card stock
Specialty papers	Gloss Book	88 to 176 g/m^2 grain long (60 to 120 lb book)	
	Gloss Cover	162 to 176 g/m^2 grain long (60 to 65 lb cover)	
Card stock—upper limit (grain long) [1]	Index Bristol	120 g/m^2 (67 lb)	
	Tag	120 g/m^2 (74 lb)	
	Cover	135 g/m^2 (50 lb)	
Card Stock—upper limit (grain short) [1]	Index Bristol	163 g/m^2 (90 lb)	
	Tag	163 g/m^2 (100 lb)	
	Cover	176 g/m^2 (65 lb)	
Transparency [6]	Laser printer	170 to 180 g/m^2 (45 to 48 lb bond)	
Labels—upper limit	Paper	131 g/m^2 (35 lb bond)	
Envelopes (Multipurpose feeder or manual slot only)	Sulfite, wood-free or up to 100% cotton bond	60 to 105 g/m^2 to 28 lb bond)[3, 4]	

1 For 60 to 176 g/m^2 paper, grain long fibers are recommended.
2 Paper less than 75 g/m^2 (20 lb) must be printed with Paper Type set to **Light Paper**.
3 100% cotton content maximum weight is 24 lb bond.
4 28 lb bond envelopes are limited to 25% cotton content.
5 The duplex unit supports paper weights between 60–105 g/m^2 (16–28 pound) grain long bond. The duplex unit does not support card stock, transparencies, envelopes, and labels.
6 Lexmark transparency part numbers 12A8240, and 12A8241 are supported from the standard tray, manual slot and the multipurpose feeder.
7 Paper 90 to 104.9 g/m^2 (23.9 to 27.8 lb) must be printed with Paper Type set to **Heavy Paper**.
8 Paper 105 to 176 g/m^2 (27.9 to 47 lb) must be printed with Paper Type set to **Cardstock**.

Media guidelines

Paper characteristics

The following paper characteristics affect print quality and reliability. Consider these characteristics when evaluating new paper stock.

- **Weight**—The printer can automatically feed paper weights from 60 to 176 g/m^2 (16 to 47 lb bond) grain long. Paper lighter than 75 g/m^2 (20 lb) might not be stiff enough to feed properly, causing jams. For best performance, use 80 g/m^2 (21 lb bond) grain long paper. For paper smaller than 182 x 257 mm (7.2 x 10.1 in.), we recommend 90 g/m^2 or heavier paper.
- **Curl**—Curl is the tendency for paper to curl at its edges. Excessive curl can cause paper feeding problems. Curl can occur after the paper passes through the printer, where it is exposed to high temperatures. Storing paper unwrapped in hot, humid, cold, or dry conditions, even in the trays, can contribute to paper curling prior to printing and can cause feeding problems.
- **Smoothness**—Paper smoothness directly affects print quality. If paper is too rough, toner cannot fuse to it properly. If paper is too smooth, it can cause paper feeding or print quality issues. Always use paper

between 100 and 300 Sheffield points; however, smoothness between 150 and 200 Sheffield points produces the best print quality.

- **Moisture content**—The amount of moisture in paper affects both print quality and the ability of the printer to feed the paper correctly. Leave paper in its original wrapper until it is time to use it. This limits the exposure of paper to moisture changes that can degrade its performance. Condition paper before printing by storing it in its original wrapper in the same environment as the printer for 24 to 48 hours before printing. Extend the time several days if the storage or transportation environment is very different from the printer environment. Thick paper may also require a longer conditioning period.
- **Grain direction**—Grain refers to the alignment of the paper fibers in a sheet of paper. Grain is either grain long, running the length of the paper, or grain short, running the width of the paper. For 60 to 176 g/m^2 (16 to 47 lb bond) paper, use grain long fibers.
- **Fiber content**—Most high-quality xerographic paper is made from 100% chemically treated pulped wood. This content provides the paper with a high degree of stability resulting in fewer paper feeding problems and better print quality. Paper containing fibers such as cotton possesses characteristics that can negatively affect paper handling.

Unacceptable paper

The following paper types are not recommended for use with the printer:

- Chemically treated papers used to make copies without carbon paper, also known as carbonless papers
- Preprinted papers with chemicals that may contaminate the paper
- Preprinted papers that can be affected by the temperature in the printer fuser
- Preprinted papers that require a registration (the precise location on the page) greater than ± 2.3 mm (± 0.9 in.), such as optical character recognition (OCR) forms. In some cases, registration can be adjusted with a software application to successfully print on these forms.
- Coated papers (erasable bond), synthetic papers, thermal papers
- Rough-edged, rough or heavily textured surface papers or curled papers
- Recycled papers that fail EN12281:2002 (European testing)
- Paper weighing less than 60 g/m^2 (16 lb)
- Multiple part forms or documents

Selecting paper

Using appropriate paper prevents jams and helps ensure trouble-free printing. To help avoid jams and poor print quality:

- Always use new, undamaged paper.
- Before loading paper, know the recommended print side of the paper. This information is usually indicated on the paper package.
- Do not use paper that has been cut or trimmed by hand.
- Do not mix paper sizes, types, or weights in the same source; mixing results in jams.
- Do not use coated papers unless they are specifically designed for electrophotographic printing.

Selecting preprinted forms and letterhead

Use these guidelines when selecting preprinted forms and letterhead:

- Use grain long for 60 to 176 g/m^2 weight paper.
- Use only forms and letterhead printed using an offset lithographic or engraved printing process.
- Avoid papers with rough or heavily textured surfaces.

Use papers printed with heat-resistant inks designed for use in xerographic copiers. The ink must be able to withstand temperatures up to 200°C (392°F) without melting or releasing hazardous emissions. Use inks that are not affected by the resin in toner. Inks that are oxidation-set or oil-based generally meet these requirements; latex inks might not. When in doubt, contact the paper supplier.

Preprinted papers such as letterhead must be able to withstand temperatures up to 200°C (392°F) without melting or releasing hazardous emissions.

Storing paper

Use these paper storage guidelines to help avoid jams and uneven print quality:

- For best results, store paper where the temperature is 21°C (70°F) and the relative humidity is 40%. Most label manufacturers recommend printing in a temperature range of 18 to 24°C (65 to 75°F) with relative humidity between 40 and 60%.
- Store paper in cartons when possible, on a pallet or shelf, rather than on the floor.
- Store individual packages on a flat surface.
- Do not store anything on top of individual paper packages.

Using recycled paper and other office papers

As an environmentally conscious company, Lexmark supports the use of recycled office paper produced specifically for use in laser (electrophotographic) printers. In 1998, Lexmark presented to the US government a study demonstrating that recycled paper produced by major mills in the US, fed as well as non-recycled paper. However, no blanket statement can be made that all recycled paper will feed well. Lexmark consistently tests its printers with recycled paper (20–100% post-consumer waste) and a variety of test paper from around the world, using chamber tests for different temperature and humidity conditions. Lexmark has found no reason to discourage the use of today's recycled office papers, but generally the following property guidelines apply to recycled paper.

- Low moisture content (4–5%)
- Suitable smoothness (100–200 Sheffield units, or 140–350 Bendtsen units, European)
  Note: Some much smoother papers (such as premium 24 lb laser papers, 50–90 Sheffield units) and much rougher papers (such as premium cotton papers, 200–300 Sheffield units) have been engineered to work very well in laser printers, despite surface texture. Before using these types of paper, consult your paper supplier.
- Suitable sheet-to-sheet coefficient of friction (0.4–0.6)
- Sufficient bending resistance in the direction of feed

Recycled paper, paper of lower weight (<60 g/m^2 [16 lb bond]) and/or lower caliper (<3.8 mils [0.1 mm]), and paper that is cut grain-short for portrait (or short-edge) fed printers may have lower bending resistance than is required for reliable paper feeding. Before using these types of paper for laser (electrophotographic) printing, consult your paper supplier. Remember that these are general guidelines only and that paper meeting these guidelines may still cause paper feeding problems in any laser printer (for example, if the paper curls excessively under normal printing conditions).

Digital imaging specifications

General specifications

ADF scan speed

- Simplex ADF—Up to 5 ppm
- Duplex ADF—Up to 5 ppm (page sides)

ADF document handling

- ADF input capacity—50 sheets
- ADF output capacity—50 sheets
- ADF document width—4.9 in. (125 mm) to 8.5 in. (216 mm)
- ADF document length—5 in. (127 mm) to 14.0 in. (356 mm)

Resolution and color depth

- Resolution—1200 dpi optical
- CDD 1200 dpi, and 600 dpi—Selectable through electronics
- Color depth—48 bit RGB output, 16 bit / channel

Flatbed document specifications

- Document size—Up to A4 and letter
  4.5” x 5.5” to 8.5”x11” (SEF)

Flatbed speed

3 seconds to scan, 3 seconds to return

Scanner operating environments

- Temperature—10°–35°C
- Humidity—15%–85%RH

Storage environments

- Temperature— -20–43°C
- Humidity—5%–95%RH

Tilt

This device should operate within the stated parameters when it is level within 10 mm from front to back and 10 mm side to side.

Scan and copy specific specifications

Scan resolutions

- Optical—600 dpi (Local TWAIN only)
- Enhanced (via Lexmark Scan Center)—1200 x 1200 dpi, 2400 x 2400 dpi, 4800 x 4800 dpi, 9600 x 9600 dpi, 19200 x 19200 dpi

Output resolutions

- Mono—600 x 600 dpi
- Color—600 x 600 dpi

Duplex scan

Duplex scan and copy is available on X548 series machines.

Scan file output formats

- TIFF
- JPEG
- PDF
- XPS

Supported compressions

- PDF—(1 bit—JBIG2 CCIT G4, Flate), (8/24 bit—Flate JPEG)
- TIFF—(1 bit—CCITT G4), (8/24 bit—Packbits, LZW)
- JPG—(8/24 bit—JPG)

Supported scan destinations

- Temporary profile from a user's PC
- Scan to PC via network TWAIN
- Scan to PC using Web applet
- Scan to E-mail
- Scan to USB (X544 models only)
- Lexmark Scan Center

Multiple copies

999 copies maximum

Reduce/Enlarge

-25% to 400%

Fax specifications

Phone network connectivity

Phone networks types supported	PSTN or analog PABX (RJ-11)
ITU compatibility	Group 3/ECM
Mono resolution Standard resolution Fine Superfine Ultrafine	 8 x 3.85 pels/mm (200 x 100dpi) (204 x 98) 8 x 7.7 pels/mm (200 x 200dpi) (204 x 196) 11.8 x 11.8 pels/mm (300 x 300 dpi) (204 x 391) 15.7 x 15.7 pels/mm (400 x 400 dpi) (408 x 391)
Coding	ITU T.4 and T.6 (MH, MR, MMR, JPEG)
Modem speed	V.34 (2,400–33,600 BPS) V.17 (7,200–14,400 BPS) V.27ter (2,400–4,800 BPS) V.29 (7,200–9,600 BPS)
Compression	MH, MR, MMR, JPEG
Error correction	ITU T.30
Line interface selection	
Modular Plug Out Band Signal Level	Dual RJ-11C Guaranteed North American and Europe PTT standard
Input Level Range Ring Detection	-16dBm ~ -59dBm Complies with all regulatory requirements

Fax resolutions

Receive	200 x 100 dpi, 200 x 200 dpi, 300 x 300 dpi, 400 x 400 dpi, 204 x 98 dpi, 204 x 196 dpi, 204 x 391 dpi, 408 x 391 dpi
Send	200 x 100 dpi, 200 x 200 dpi, 300 x 300 dpi

Miscellaneous fax specifications

Fax memory	4MB flash (More than 320 pages based on ITU chart #1) User selectable parameters are stored in NVRAM.
Speed dial	Yes—99 entries
Transmission	Approximately 3 seconds per page
Color fax	Yes
Fax from PC	Yes. Supported using PostScript driver for both local and network attach modes.
Caller ID	Yes
Junk fax blocking	Yes—Based on caller ID and remote station ID
Tone/Pulse	Tone—Default, Pulse—Yes
Fax forward	Yes
Broadcasting	Yes—12 destinations
External phone interface	Yes
Manual mode	Yes
Fax shortcuts	Yes
Fax content	Text, text/photo, photo
Fax preservation	Yes
Halftoning	Yes

Tools required for service

Flat-blade screwdrivers, various sizes
#1 Phillips screwdriver, magnetic
#2 Phillips screwdriver, magnetic
#2 Phillips screwdriver, magnetic short-blade
7/32-inch (5.5 mm) open-end wrench
7.0-mm nut driver
Needlenose pliers
Diagonal side cutters
Spring hook
Feeler gauges
Analog or digital multimeter
Parallel wrap plug 1319128
Flash light (optional)

Acronyms

ac	Alternating Current
ACM	Autocompensator Mechanism (or paper feed)
ADF	Automatic Document Feeder
ASIC	Application Specific Integrated Circuit
C	Cyan
CCD	Charge Coupled Device
CMYK	Cyan, magenta, yellow, and black
CRC	Cyclic redundancy check
CRU	Customer Replaceable Unit
dc	Direct Current
DIMM	Dual Inline Memory Module
DRAM	Dynamic Random Access Memory
ECC	Error correcting code
ECM	Error correction mode
EEPROM	Electrical Erasable Programmable Read-Only Memory
EP	Electrophotographic process
EPROM	Erasable Programmable Read-Only Memory
ESD	Electrostatic Discharge
FB	Flatbed
FRU	Field Replaceable Unit
GB	Gigabyte
HBP	Host Based Printing
HTML	Hypertext markup language
HVPS	High voltage power supply
Hz	Hertz
ITU	Image Transfer Unit
K	Black (Key)
LAN	Local Area Network
LASER	Light Amplification by Stimulated Emission of Radiation
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LVPS	Low voltage power supply
M	Magenta
MB	Megabyte
MFD	Multifunction Device
MFP	Multifunction Printer
MH	Message handling
mm	Millimeter
MMR	Modified modified read
MPF	Multipurpose feeder
MR	Modem ready
NAND	NAND (usage: NAND gate)
NVM	Nonvolatile Memory
NVRAM	Nonvolatile Random Access Memory
OCF	Operator correctable failure
OPT	Optical Sensor
PC	Photoconductor
PDF	Portable Document Format
PIXEL	Picture element
PJL	Printer Job Language
POR	Power-on reset

POST	Power-on self test
PPDS	Personal Printer Data Stream
ppm	Pages per minute
RAM	Random access memory
RH	Relative humidity
SCC	Scanner Control Card
SEF	Short edge feed
TPS	Toner Patch Sensing
USB	Universal Serial Bus
V	Volts
V ac	Volts alternating current
V dc	Volts direct current
VOIP	Voice over internet protocol
Y	Yellow

2. Diagnostic information

Start

CAUTION

Unplug the power cord from the electrical outlet before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the printer. Disconnect any connections between the printer and PCs/peripherals.

Use the service error code, user status message, user error message, symptom table, service checks, and diagnostic aids in this chapter to determine the corrective action necessary to repair a malfunctioning printer. They will lead you to solutions or service checks, including use of various tests.

Symptom tables

If the machine completes the Power-On Reset (POR) sequence without an error and you have a symptom, then go to **"Symptoms tables" on page 2-2**. Locate your symptom, and take the appropriate action.

Service errors (1xx.xx, 8xx.xx, and 9xx.xx's)

If a service error code appears while you are working on the machine, then go to **"Service error messages" on page 2-13**, and take the indicated action for that error.

Service error codes are indicated by a three-digit error code followed by a period and additional numbers in the format xxx.xx. In most cases, five digits are shown.

User status and attendance messages

• User status messages provide the user with information on the current status of the printer. `Ready` displays on the first line of the display unless invoked, and then `Power Saver` displays. If a user status message is displayed, then go to **"User status and attendance messages" on page 2-5**.

• User attendance messages are indicated by a two- or three-digit error code that provides the user with information that explains a problem with a print cartridge, paper jam, option, port, and so on. If a user error message displays, then go to **"User status and attendance messages" on page 2-5** and **"2xx paper jam messages" on page 2-10**.

Power-On Reset (POR) sequence

The following is an example of the events that occur during the POR sequence when the printer is turned on.

1. Display screen illuminates and the memory test is initiated.
2. The Lexmark splash screen is displayed with a progress bar. The firmware revision is displayed in the lower left portion of the screen.
3. Scanner calibration and testing initiates when the progress bar is two thirds finished.
4. `Not Ready` will be displayed if any cover is open.
5. Any cartridge errors, such as `Defective Cartridge`, are displayed in the message area at the bottom of the screen.
6. Applicable maintenance messages are displayed.
7. Applicable toner low messages are displayed.
8. The red indicator light will flash if there are errors.
9. The printer displays `Ready`.

Symptoms tables

Printer symptoms table

Symptom	Action
Dead printer	Go to **“Dead printer service check” on page 2-34**.
Operator panel—one or more buttons do not work.	Go to **“One or more operator panel buttons fail” on page 2-41**.
Operator panel—display is blank.	Go to **“Operator panel display is blank” on page 2-42**.
Pages print blank after replacing the RIP board.	When replacing the RIP board, verify the cable from the high-voltage power supply is seated properly. The cable may have come loose from the HVPS. **Warning:** A blank page that should have toner on it could be an indication that toner is applied to the ITU belt but not transferred. Therefore the toner goes into the ITU cleaner which cannot process massive amounts of toner. It is important to prevent extensive blank pages from being processed if they should have toner on them.
Tray linking does not work.	• Check that the same size and type of paper are in each tray. • Check the location of the paper guides. • The multipurpose feeder does not automatically sense the paper size. You must set the size from the Paper Size/Type menu. • Print a menu settings page, compare the settings for each tray, and adjust on the operator panel, if necessary.
Unexpected page breaks occur	• Increase the Print Timeout value on the operator panel (Settings–>General Settings–>Timeouts–>Print Timeout).
Multipurpose feeder has constant misfeeds or jams.	• Remove and flex the paper in the tray. Reload the paper, and try printing. • Turn the paper over inside the tray. • Make sure the feeder is properly installed. • Make sure the paper is loaded correctly in the tray. • Make sure the paper is not damaged. • Make sure the paper meets specifications. See **“Media input type specifications” on page 1-12**. • Make sure the paper guides are positioned correctly for the paper size loaded in the tray.
Page that jammed does not reprint after you clear the jam.	Jam Recovery may be set to **Off**. Change the setting to **Auto** or **On** on the operator panel. To change this setting, navigate to **> Settings > General Settings > Print Recovery > Jam Recovery**.
Printing speed reduced for more than 10 pages. This may happen after a service call.	Check the narrow media sensor cable is correctly connected at the sensor, and the cable is correctly connected to JBIN1 on the RIP board.
Pages print blank after replacing the RIP board.	When replacing the RIP board, verify the cable from the high-voltage power supply is seated properly. The cable may have come loose from the HVPS. **Warning:** A blank page that should have toner on it could be an indication that toner is applied to the ITU belt but not transferred. Therefore the toner goes into the ITU cleaner which cannot process massive amounts of toner. It is important to prevent extensive blank pages from being processed if they should have toner on them.
Unexpected page breaks occur	Increase the Print Timeout value on the operator panel. To adjust this setting, navigate to **> Settings > General Settings > Timeouts > Print Timeout**.

Scan / fax / copy symptom table

Symptom	Action
840.xx scanner error	Go to **“840.xx error service check” on page 2-59**.
ADF won’t duplex (Duplex ADF only).	Go to **“ADF duplex service check” on page 2-65**.
ADF skew	Go to **“ADF feed errors service check” on page 2-64**.
Multiple pages feed into the ADF.	
Documents won’t feed into the ADF.	
Scanner makes buzzing noise on startup or during a scan.	Go to **“Flatbed home position service check” on page 2-61**.
Document feeds, but jams in the ADF.	Go to **“ADF paper jam service check” on page 2-63**.
Black streaks on scans.	Go to **“ADF streak service check” on page 2-63**.
Blank page	Go to **“Black or blank page copy service check” on page 2-60**.
No dial tone	Go to **“Modem/fax card service check” on page 2-66**.
Device dials a number but fails to make a connection with another fax machine.	The other fax machine may be turned off. Ask the fax recipient to check their machine.
Incoming fax has blank spaces or poor quality.	• The sending fax machine may be faulty. • The sending fax machine may have a dirty document glass. • A noisy phone line can cause errors. • Check the MFP print quality by making a copy. • The print cartridge may be empty. Replace as necessary.
Invalid fax partition, or fax partition too small.	See **“Fax Low Power Support” on page 3-36**.
Some words on an incoming fax are stretched.	The sending fax machine had a temporary jam.
Faxes fail to transmit.	Go to **“Fax transmission service check” on page 2-67**.
Fax reception fails.	Go to **“Fax reception service check” on page 2-68**.
Rattling noise coming from the ADF unit.	Inspect the ADF separator roll and ADF separator pad for proper installation. If needed, remove the separator pad and separator roll and reinstall them. See **“ADF separator pad removal” on page 4-91** and **“ADF separator roll assembly removal” on page 4-92** for removal instructions.

Print quality symptoms table

Symptom	Action
Background	Go to **“Print quality—background” on page 2-46**.
Blank page	Go to **“Print quality—blank page” on page 2-47**.
Blurred or fuzzy print	Go to **“Print quality—blurred or fuzzy print” on page 2-49**.
Half-color page	Go to **“Print quality—half-color page” on page 2-49**.
Horizontal banding	Go to **“Print quality—horizontal banding” on page 2-49**.
Horizontal line	Go to **“Print quality—horizontal line” on page 2-50**.
Insufficient fusing	Go to **“Print quality—insufficient fusing” on page 2-50**.
Missing image at edge	Go to **“Print quality—missing image at edge” on page 2-50**.
Mottle (2–5mm speckles)	Go to **“Print quality—mottle (2–5mm speckles)” on page 2-51**.
Narrow vertical line	Go to **“Print quality—narrow vertical line” on page 2-51**.
Random marks	Go to **“Print quality—random marks” on page 2-51**.
Residual image	Go to **“Print quality—residual image” on page 2-52**.
Solid color page	Go to **“Print quality—solid color page” on page 2-53**.
Vertical banding	Go to **“Print quality—vertical banding” on page 2-54**.
Color problems	Go to **“Color theory” on page 3-67**.
Light print on solids	Go to **“Media guidelines” on page 1-13**.

Error codes and messages

User status and attendance messages

User primary message	Explanation
290–294 ADF scanning jams	The scanner failed to feed one or more pages through the ADF. 1. Remove all original documents from the ADF. **Note:** The message clears when the pages are removed from the ADF. 2. Do not fold or crease original documents. Straighten the edges on a level surface. 3. Load the original documents in the ADF. 4. Adjust the ADF guides. 5. Touch **Continue, jam cleared**.
Adjusting color	Wait for the process to complete.
Change [paper source] to [custom type name]	Try one or more of the following: • Touch **Use current [paper source]** to ignore the message and print from the selected tray. • Load the correct paper size and type in the tray, verify the paper size and type settings are specified in the printer control panel Paper menu, and then touch **Paper changed, continue**. • Touch **Cancel job** to cancel the print job.
Change [paper source] to [custom type name] load [orientation]	
Change [paper source] to [custom string]	
Change [paper source] to [custom string] load [orientation]	
Change [paper source] to [paper size]	
Change [paper source] to [paper size] load [orientation]	
Change [paper source] to [paper size] [paper type]	
Change [paper source] to [paper size] [paper type] load [orientation]	
Close front door	Close the front door of the printer.
Insert Tray [x]	Insert the specified tray into the printer.
Fax Station Name not set up. Contact system administrator.	The Fax Station Name has not been entered. Sending and receiving faxes is disabled until fax is configured properly. Try one or more of the following: • Touch **Continue** to clear the message. • Complete the Analog Fax Setup. If the message appears again, then contact your system support person.
Fax Station Number not set up. Contact system administrator.	The Fax Station Number has not been entered. Sending and receiving faxes is disabled until fax is configured properly. Try one or more of the following: • Touch **Continue** to clear the message. • Complete the Analog Fax Setup. If the message appears again, then contact your system support person.
Memory full, cannot print faxes	There is not enough memory to print the fax job. Touch **Continue** to clear the message without printing. Held faxes will attempt to print after the printer has been restarted.

User status and attendance messages

User primary message	Explanation
No analog phone line connected to modem, fax is disabled	The analog phone line was not detected; the fax is disabled. Connect the printer to an analog phone line, and then touch **Continue**.
Some held jobs were not restored	Touch **Continue** to delete the specified job. **Note:** Held jobs that are not restored stay on the hard disk and are inaccessible.
37 Insufficient memory, some held jobs will not be restored	The printer deleted some held jobs in order to process current jobs. Touch **Continue** to clear the message.
57 Configuration change, some held jobs were not restored	Something has changed in the printer to invalidate the held jobs. Possible changes include: • The printer firmware has been updated. • Paper input options needed for the print job were removed. • The print job was created using data from a device in the USB port and the device is no longer in the USB port. • The printer hard disk contains print jobs that were stored while installed in a different printer model. Touch **Continue** to clear the message.
Load [src] with [custom type name] Load [src] with [custom string] Load [src] with [size] Load [src] with [type] [size]	Try one or more of the following: • Load the specified paper in the tray or feeder. • Touch **Paper loaded, continue** to clear the message and continue printing. If the printer finds a tray that has the correct paper type and size, it feeds from that tray. If the printer cannot find a tray with the correct paper type and size, it prints from the default paper source. • Cancel the print job.
Load Manual Feeder with [custom type name] Load Manual Feeder with [custom string] Load Manual Feeder with [paper size] Load Manual Feeder with [paper type] [paper size]	Try one or more of the following: • Load the specified paper in the manual feeder. • Touch **Prompt each page**, **paper loaded** or **Do not prompt**, **paper loaded** to clear the message and continue printing. • Touch **Automatically select paper** to use the paper loaded in the tray. • Cancel the print job.
Remove paper from standard output bin	Remove the stack of paper from the standard exit bin.
Remove packaging material, [area name]	Remove any remaining packaging material from the specified location.
Error reading USB drive. Remove drive.	An unsupported USB device has been inserted. Remove the USB device, and then install a supported one.
Error reading USB hub. Remove hub.	An unsupported USB hub has been inserted. Remove the USB hub, and then install a supported one.
Unsupported camera mode, unplug camera and change mode	The camera mode does not support PictBridge. Unplug the camera, change the mode, and plug the camera back into the printer.
Unsupported disk	An unsupported disk has been inserted. Remove the unsupported disk, and then install a supported one.
30.xx Missing [color] cartridge and/or [color] imaging kit	Try one or more of the following: • Remove and reinstall the specified toner cartridge or imaging kit. For instructions on removing a toner cartridge or imaging kit, touch **More information**. • Install a new toner cartridge or imaging kit, following the instruction sheet that came with the replacement part.

User status and attendance messages

User primary message	Explanation
31.xx Defective [color] cartridge	The specified toner cartridge is either missing or not functioning properly. Try one or more of the following: • Remove the specified toner cartridge, and then reinstall it. • Remove the specified toner cartridge, and then install a new one.
32.xx [color] cartridge part number unsupported by device	Remove the unsupported toner cartridge, and then install a supported one.
34 Incorrect paper size, open [src]	Try one or more of the following: • Load the appropriate paper or specialty media in the proper tray. • Confirm that the wheel on tray 1 is set to the paper size loaded in the tray. Make sure this size is the size you are trying to print. • Touch **Continue** to clear the message and print using a different tray. • Check length and width guides of the tray and make sure the paper is properly loaded in the tray. • Make sure the Print Properties or Print dialog settings have the correct paper size and type. • Check that the paper size is correctly set. For example, if the MP Feeder Size is set to Universal, make sure the paper is large enough for the data being printed. • Cancel the print job.
35 Insufficient memory to support Resource Save feature	Try one or more of the following: • Touch **Continue** to disable Resource Save and continue printing. • To enable Resource Save after receiving this message, make sure the link buffers are set to Auto, and then exit the menus to activate the link buffer changes. When Ready appears, enable Resource Save. • Install additional memory.
37 Insufficient memory to collate job	Try one or more of the following: • Touch **Continue** to print the portion of the job already stored and begin collating the rest of the print job. • Cancel the current print job.
38 Memory full	Try one or more of the following: • Touch **Cancel job** to clear the message. • Install additional printer memory.
39 Complex page, some data may not have printed	Try one or more of the following: • Touch **Continue** to clear the message and continue printing. • Cancel the current print job. • Install additional printer memory.
51 Defective flash detected	Try one or more of the following: • Touch **Continue** to clear the message and continue printing. • Cancel the current print job.
52 Not enough free space in flash memory for resources	Try one or more of the following: • Touch **Continue** to clear the message and continue printing. Downloaded fonts and macros not previously stored in flash memory are deleted. • Delete fonts, macros, and other data stored in flash memory. • Upgrade to a larger capacity flash memory card.
53 Unformatted flash detected	Try one or more of the following: • Touch **Continue** to stop the defragment operation and continue printing. • Format the flash memory. If the error message remains, the flash memory may be defective and require replacing.

User status and attendance messages

User primary message	Explanation
54 Standard network software error	Try one or more of the following: • Touch **Continue** to continue printing. • Turn the printer off and then back on to reset the printer. • Upgrade (flash) the network firmware in the printer or print server.
54 Network [x] software error	Try one or more of the following: • Touch **Continue** to continue printing. • Turn the printer off, wait for about 10 seconds, and then turn the printer back on. • Upgrade (flash) the network firmware in the printer.
56 Standard USB port disabled	Try one or more of the following: • Touch **Continue** to clear the message. The printer discards any data received through the USB port. • Make sure the USB Buffer menu item is not set to Disabled.
58 Too many flash options installed	1. Turn the printer off. 2. Unplug the power cord from the wall outlet. 3. Remove the excess flash memory. 4. Connect the power cord to a properly grounded outlet. 5. Turn the printer back on.
58 Too many trays attached	1. Turn the printer off. 2. Unplug the power cord from the wall outlet. 3. Remove the additional trays. 4. Connect the power cord to a properly grounded outlet. 5. Turn the printer back on.
59 Incompatible tray [x]	Try one or more of the following: • Remove the specified tray. • Touch **Continue** to clear the message and continue printing without using the specified tray.
61 Remove defective disk	Try one or more of the following: • Touch **Continue** to clear the message and continue printing. • Install a different printer hard disk before performing any operations that require a printer hard disk.
62 Disk full	Try one or more of the following: • Touch **Continue** to clear the message and continue processing. • Delete fonts, macros, and other data stored on the printer hard disk. • Install a printer hard disk with larger capacity.
63 Unformatted disk	Try one or more of the following: • Touch **Continue** to clear the message and continue printing. • Format the printer hard disk. If the error message remains, the hard disk may be defective and may require replacing.
82.xx Waste toner bottle nearly full	Order a replacement waste toner bottle immediately. 1. Replace the waste toner bottle. For instructions on installing the waste toner bottle, touch **More Information**. 2. Touch **Continue** to clear the message and continue printing.
84.xx [color] imaging kit missing	Install the specified color imaging kit, following the instruction sheet that came with the replacement part.
84 unsupported [color] imaging kit	Remove the specified imaging kit, and then install a supported one.

User status and attendance messages

User primary message	Explanation
84.xx [color] imaging kit nearly low	1. Order a replacement imaging kit. 2. When print quality is reduced, install the new imaging kit, following the instruction sheet that came with the replacement part. 3. Touch **Continue** to clear the message and continue printing.
84 Defective [color] imaging kit	The specified imaging kit is either missing or not functioning properly. Try one or more of the following: • Remove the specified imaging kit, and then reinstall it. • Remove the specified imaging kit, and then install a new one.
84.xx [color] imaging kit low	1. Order a replacement imaging unit immediately. 2. When print quality is reduced, install the new imaging kit, following the instruction sheet that came with the replacement part. 3. Touch **Continue** to clear the message and continue printing.
84.xx Replace [color] imaging kit and [color] cartridge	1. Replace the imaging kit and color cartridge, following the instruction sheets that came with the replacement parts. 2. Touch **Continue** to clear the message and continue printing.
88.xx [color] cartridge nearly low	1. Order a replacement toner cartridge. 2. Remove the specified cartridge. 3. Firmly shake the cartridge side-to-side and front-to-back several times to redistribute the toner. 4. Reinsert the cartridge, and then touch **Continue** to clear the message and continue printing. **Note:** Repeat this procedure multiple times until the print remains faded, and then replace the cartridge.
88.xx [color] cartridge low	1. Order a replacement toner cartridge immediately. 2. Remove the specified cartridge. 3. Firmly shake the cartridge side-to-side and front-to-back several times to redistribute the toner. 4. Reinsert the cartridge, and then touch **Continue** to clear the message and continue printing. **Note:** Repeat this procedure multiple times until the print remains faded, and then replace the cartridge.
Scanner automatic feeder cover open	Close the ADF cover to clear the message.
Scan document too long	The scan job exceeds the maximum number of pages. Touch Cancel job to clear the message and cancel the scan job.
If restarting job, replace originals that have not begun to exit the scanner Replace last scanned page and jammed originals if restarting job. Replace jammed originals if restarting job. Replace all originals if restarting job.	Try one or more of the following: • Touch **Cancel job** to clear the message and cancel the scan job. • Touch **Scan from automatic feeder** to continue scanning from the ADF immediately after the last successful scan job. • Touch **Scan from flatbed** to continue scanning from the scanner immediately after the last successful scan job. • Touch **Finish job without further scanning** to end the last successful scan job. • Touch **Restart job** to restart the scan job with the same settings from the previous scan job.
Remove originals from the scanner automatic document feeder	The scanner failed to feed one or more pages through the ADF. 1. Remove all pages from the ADF. **Note:** The message clears when the pages are removed from the ADF. 2. Flex the pages back and forth to loosen them. 3. Place the pages in the ADF. 4. Adjust the ADF guides.

User status and attendance messages

User primary message	Explanation
840.01 Scanner disabled by admin	Print without the scanner or contact your system support person.
840.02 Scanner disabled. Contact system administrator if problem persists.	The printer identified a problem with the scanner and automatically disabled it. Try one or more of the following: 1. Remove all pages from the ADF. 2. Turn the printer off. 3. Wait for 15 seconds, and then turn the printer on. **Note:** If turning the printer off and then on again does not clear the message, then touch **Continue with scanner disabled** to return to the home screen, and then contact your system support person. 4. Place the document in the ADF, and then adjust the paper guides. 5. From the home screen, touch **Copy**, or use the keypad to enter the number of copies. 6. Change the copy settings as needed. 7. Touch **Copy It**.
30.xx [Color] cartridge missing	Try one or more of the following: • Remove and reinstall the specified toner cartridge. For instructions on removing a toner cartridge, touch **More information**. • Install a new toner cartridge, following the instruction sheet that came with the replacement part.
82.xx Replace waste toner bottle	1. Replace the waste toner bottle. For instructions on replacing the waste toner bottle, touch **More Information**. 2. Touch **Continue** to clear the message and continue printing.
82.xx Waste toner bottle missing	Reinsert the waste toner bottle into the printer.
88.xx [Color] cartridge critically low	Replace the specified toner cartridge. 1. Touch **More Information** from the printer control panel for instructions on replacing a print cartridge. 2. Touch **Continue** to clear the message and continue printing.

2xx paper jam messages

Error code	Description	Action
200.*xx* Paper Jam Check <*area*>	A single page of media jam at the input sensor.	Remove the tray 1 unit, open the front door, and remove the print cartridge to access the jam area. Remove the jammed page. See **“200 paper jam” on page 3-47**.
200.*xx* Paper Jam <*x*> Pages Jammed	Multiple pages of media are jammed at the input sensor.	Open the front door and remove the print cartridge to access the jam area. Remove all the jammed pages. See **“200 paper jam” on page 3-47**.
201.*xx* Paper Jam Check <*area*>	A single page of media is jammed between the input and exit sensors.	Open the front door and remove the print cartridge to access the jam area. Remove the jammed page. See **“201 paper jam” on page 3-48**.
201.*xx* Paper Jam <*x*> Pages Jammed	Multiple pages of media are jammed between the input and exit sensors.	Open the front door and remove the print cartridge to access the jam area. Remove all the jammed pages. See **“201 paper jam” on page 3-48**.

2xx paper jam messages

Error code	Description	Action
202.*xx* Paper Jam Check <*area*>	A single page of media is jammed at the exit sensors.	Open the printer rear door to access the jam area. Remove the jammed page. See **"202 paper jam" on page 3-49**.
202.*xx* Paper Jam <*x*> Pages Jammed	Multiple pages of media are jammed at the exit sensor.	Open the printer rear door to access the jam area. Remove all the jammed pages. See **"202 paper jam" on page 3-49**.
230.xx Paper Jam Check <*area*>	A single page of media is jammed at the inner door.	Remove the jammed page. See **"230 paper jam" on page 3-50**.
230.xx Paper Jam <*x*> Pages Jammed	Multiple pages of media are jammed at the inner door.	Remove all the jammed pages. See **"230 paper jam" on page 3-50**.
235 Paper Jam Check Duplex	Paper jam in the duplex area.	Remove all pages. See **"235 paper jam" on page 3-50**.
241.xx Paper Jam Check <*area*> or 241.xx Paper Jam <*x*> Pages Jammed	Paper jam in the primary tray.	• Open the door, and remove all the jammed pages. See **"242, 243 paper jam" on page 3-52**. • Verify the proper tray settings for the media. • Fan the media. • Check the condition of the pick tires.
242.*xx* Paper Jam Check <*area*>	A single or multiple page media jam in the 650-sheet Duo Drawer (tray 2).	See **"242, 243 paper jam" on page 3-52**.
242.*xx* Paper Jam <*x*> Pages Jammed	Multiple pages of media are jammed in the 650-sheet Duo Drawer (tray 2).	See **"242, 243 paper jam" on page 3-52**.
243.*xx* Paper Jam Check <*area*> or 243.*xx* Paper Jam <*x*> Pages Jammed	A single or multiple page media jam in the optional 550-sheet drawer (tray 3). Multiple pages of media are jammed in the optional 550-sheet drawer (tray 3).	Open the door, and remove all the jammed pages. See **"242, 243 paper jam" on page 3-52**.
250.*xx* Paper Jam Check Manual Feeder	A single page of media is jammed in the multipurpose feeder.	Open tray 2 to access the jam area. Remove the jammed page. See **"250 paper jam" on page 3-52**.
250.*xx* Paper Jam <*x*> Pages Jammed	Multiple pages of media are jammed in the multipurpose feeder.	Open tray 2 to access the jam area. Remove all the jammed pages. See **"250 paper jam" on page 3-52**.
290.02 Scanner ADF Feed Jam	The scanner ADF has failed to feed a page to the ADF interval sensor.	Remove the sheet of paper from the ADF. Retry the job. If the error recurs, go to **"ADF paper jam service check" on page 2-63**.
290.10 Scanner Static Jam	Scanner ADF detects paper at the first scanner sensor while the ADF is in an idle state.	Remove all paper from the ADF. Retry the job. If the error recurs, go to **"ADF paper jam service check" on page 2-63**.
290.20 Scanner Static Jam-Paper Present	This message occurs when paper is detected in the ADF during a POR, or when the MFP is starting up.	Remove original documents from the ADF.
290.30-Scanner Static Jam-Paper Stop	This message displays when paper is inserted past the paper stop on the ADF.	Remove original documents from the ADF.

2xx paper jam messages

Error code	Description	Action
291.00 Scanner Jam, remove all originals from the scanner	Scanner ADF detects paper at the second scanner sensor while the ADF is in an idle state.	Open the ADF cover to access the jam area. Remove all the jammed pages. See Go to **"291.xx ADF paper jams" on page 3-54**.
291.01 Scanner Jam, remove all originals from the scanner	This message is posted if a jam is detected at the first scanner sensor.	Open the ADF cover to access the jam area. Remove all the jammed pages. See Go to **"291.xx ADF paper jams" on page 3-54**.
292 Scanner jam, remove all originals from the scanner	This message appears if the ADF cover is open while paper is fed through the ADF.	Remove the paper from the ADF, and close the ADF cover. If the error recurs, go to **"ADF cover open service check" on page 2-62**.
293 Replace all originals if restarting job	No paper sensed in the ADF.	Ensure that the paper present actuator is in the correct position. Go to **"ADF paper jam service check" on page 2-63**.
293.02 Flatbed cover open	The MFP senses that the flatbed cover is open.	Close the flatbed cover. Go to **"ADF cover open service check" on page 2-62**.
294.04 Scanner jam, remove all originals from the scanner	Jam at the ADF exit sensor.	Remove all paper from the ADF. If the error recurs, go to **"ADF paper jam service check" on page 2-63**.
294.05 Scanner jam, remove all originals from the scanner	A jam is detected at the ADF exit sensor.	

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Service error messages

Error code	Description	Action
1xx.xx service errors		
106.*xx* Service Yellow Printhead	Yellow printhead error.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.01 Service Yellow Printhead	The yellow printhead lost HSYNC.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.02 Service Yellow Printhead	The yellow printhead failed to complete servo.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.03 Service Yellow Printhead	The yellow printhead mirror motors failed to achieve lock.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.04 Service Yellow Printhead	The yellow printhead mirror motors lost PLL motor lock.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.05 Service Yellow Printhead	Failure reading NVRAM from printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.08 Service Yellow Printhead	The yellow laser showed bad in EMS testing.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.11Service Yellow Printhead	Failure writing data to printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.12 Service Yellow Printhead	Failure reading data from the printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
106.13 Service Yellow Printhead	Printhead declared error	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.*xx* Cyan Printhead Error	Cyan printhead error	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.01 Service Cyan Printhead	The cyan printhead lost HSYNC.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.02 Service Cyan Printhead	The cyan printhead failed to complete servo.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.03 Service Cyan Printhead	The cyan printhead mirror motors failed to achieve lock.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.04 Service Cyan Printhead	The cyan printhead mirror motors lost PLL motor lock.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.05 Service Cyan Printhead	Failure reading NVRAM from the cyan printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.

Service error messages

Error code	Description	Action
107.08 Service Cyan Printhead	The cyan laser showed bad in EMS testing.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.11Service Cyan Printhead	Failure writing data to printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.12 Service Cyan Printhead	Failure reading data from the printhead.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
107.13 Service Cyan Printhead	Printhead declared error.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.*xx* Service Magenta Printhead	Magenta printhead error	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.01 Service Magenta Printhead	The magenta printhead lost HSYNC.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.02 Service Magenta Printhead	The magenta printhead failed to complete servo.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.03 Service Magenta Printhead	The magenta printhead mirror motors failed to achieve lock.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.04 Service Magenta Printhead	The magenta printhead mirror motors lost PLL motor lock.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.05 Service Magenta Printhead	Failure reading NVRAM from the magenta printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.08 Service Magenta Printhead	The magenta laser showed bad in EMS testing.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.11Service Magenta Printhead	Failure writing data to printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.12 Service Magenta Printhead	Failure reading data from the printhead.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
108.13 Service Magenta Printhead	Printhead declared error.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.*xx* Service Black Printhead	Black printhead error	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.01 Service Black Printhead	The black printhead lost HSYNC.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.

Service error messages

Error code	Description	Action
109.02 Service Black Printhead	The black printhead failed to complete servo.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.03 Service Black Printhead	The black printhead mirror motors failed to achieve lock.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.04 Service Black Printhead	The black printhead mirror motors lost PLL motor lock.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.05 Service Black Printhead	Failure reading NVRAM from printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.08 Service Black Printhead	The black laser showed bad in EMS testing.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.11Service Black Printhead	Failure writing data to printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.12 Service Black Printhead	Failure reading data from the printhead	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
109.13 Service Black Printhead	Printhead declared error.	Perform a POR. If the problem persists, go to **"Printhead service check" on page 2-54**.
122.*xx* Service Fuser Error	Fuser error	Go to **"Fuser service check" on page 2-38**.
122.01 Service Fuser Error	EWC error—Attempting to print with estimated power at or below minimum power.	Go to **"Fuser service check" on page 2-38**.
122.02 Service Fuser Error	Fuser over temperature.	Go to **"Fuser service check" on page 2-38**.
122.03 Service Fuser Error	Fuser open thermistor check failed.	Go to **"Fuser service check" on page 2-38**.
122.04 Service Fuser Error	EWC Error—Did not reach EWC start temperature in time.	Go to **"Fuser service check" on page 2-38**
122.05 Service Fuser Error	EWC Error—Did not change temperature within expected time.	Go to **"Fuser service check" on page 2-38**
122.06 Service Fuser Error	EWC Error—Did not reach EWC stop temperature in time.	Go to **"Fuser service check" on page 2-38**
930.09 Service LVPS	Fuser zero crossings out of range. Zero crossing detected.	Go to **"Fuser service check" on page 2-38**.
122.10 Service Fuser Error	Fuser failed to warm up.	Go to **"Fuser service check" on page 2-38**.
122.11 Service Fuser Error	Fuser under temperature error while in standby.	Go to **"Fuser service check" on page 2-38**.
122.12 Service Fuser Error	Fuser under temperature error while printing.	Go to **"Fuser service check" on page 2-38**.

Service error messages

Error code	Description	Action
122.13 Service Fuser Error	Fuser open thermistor check failed for second thermistor.	Go to **"Fuser service check" on page 2-38**.
122.14 Service Fuser Error	Fuser shorted thermistor check failed for hot roll thermistor.	Go to **"Fuser service check" on page 2-38**.
122.15 Service Fuser Error	Fuser started thermistor check failed for second thermistor.	Go to **"Fuser service check" on page 2-38**.
122.16 Service Fuser Error	EWC Error—Estimated power is at or above maximum power.	Go to **"Fuser service check" on page 2-38**.
122.17 Service Fuser Error	Total failure to close fuser nip.	Go to **"Fuser service check" on page 2-38**.
141.*xx* Service Staging Motor	Staging motor error.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
141.01 Service Staging Motor	Staging motor has exceeded the ramp up table.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
141.02 Service Staging Motor	Staging motor has exceeded number of encoders at min PWM.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
141.03 Service Staging Motor	Staging motor has exceeded number of encoders at max PWM.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
141.04 Service Staging Motor	Motor encoder count did not change between interrupts.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
141.05 Service Staging Motor	Staging motor has encountered a stall timeout.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
150.*xx* Service Black/ITU cartridge Motor	Black/ITU cartridge motor.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
150.01 Service Black/ITU cartridge Motor	Failed to achieve lock for motor within allotted time.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
150.02 Service Black/ITU cartridge Motor	Timeout waiting for SAP BLDC motor to reach valid FG speed.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
150.03 Service Black/ITU cartridge Motor	Timeout waiting for MP_NUM_INITIAL_SAP_HALLS.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
150.04 Service Black/ITU cartridge Motor	Timeout waiting for SAP BLDC motor FG.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
150.05 Service Black/ITU cartridge Motor	Lost lock for motor.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
150.06 Service Black/ITU cartridge Motor	Excessive SAP BLDC PWM.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
150.07 Service Black/ITU cartridge Motor	Motor stalled in time-based commutation.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.

Service error messages

Error code	Description	Action
152.*xx* Service CMY Cartridge Motor		Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
152.01 Service CMY Cartridge Motor	Failed to achieve lock for motor within allotted time.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
152.02 Service CMY Cartridge Motor	Timeout waiting for SAP BLDC motor to reach valid FG speed.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
152.03 Service CMY Cartridge Motor	Timeout waiting for MP_NUM_INITIAL_SAP_HALLS.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
152.04 Service CMY Cartridge Motor	Timeout waiting for SAP BLDC motor FG.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
152.05 Service CMY Cartridge Motor	Lost lock for motor.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
152.06 Service CMY Cartridge Motor	Excessive SAP BLDC PWM.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
152.07 Service CMY Cartridge Motor	Motor stalled in time-based commutation.	Go to **"Main drive gear assembly (EP drive) service check" on page 2-40**.
8xx.xx service errors		
840.01 Scanner disabled	The scanner is disabled and can't be used.	Enter the configuration menu, and re-enable the scanner module. Go to **"840.xx error service check" on page 2-59**.
840.02 Scanner auto disabled	The scanner is disabled and can't be used.	This message is posted when the MFP PORs. Enter the configuration menu, and re-enable the scanner module. Go to **"840.xx error service check" on page 2-59**.
841	Image pipeline	Image pipeline ASIC. Go to **"CCD service check" on page 2-60**. Also,Go to **"Flatbed home position service check" on page 2-61**.
842	Scanner failure	Communication failure. Go to **"CCD service check" on page 2-60**.
843	Scanner failure	Carriage mechanical failure. Go to **"Flatbed motor service check" on page 2-61**.
843.01	Scanner failure	ADF mechanical failure. Go to **"ADF paper jam service check" on page 2-63**.
844.xx	Scanner failure	Lamp failure. Go to **"CCD service check" on page 2-60**.
844	Front scan module output level error	Go to **"CCD service check" on page 2-60**.
844.01	Rear scan module output level error	
844.02	Front scan module lamp level too low	Front Mono channel, Front Color channels, Front Red channel, Front Green channel, and/or Front Blue channel is detected to have low lamp level. Go to **"CCD service check" on page 2-60**.

Service error messages

Error code	Description	Action
844.03	Rear scan module lamp level too low	Rear Mono channel, Rear Color channels, Rear Red channel, Rear Green channel, and/or Rear Blue channel is detected to have low lamp level. Go to **"CCD service check" on page 2-60**.
845.xx	Scanner failure	CCD failure Go to **"CCD service check" on page 2-60**.
845	Front scan module cable failure or SCC card failure	CCD channel failure. Check each channel (mono, R, G, B) for identical values indicating bad cable and/or SCC card. Excessive noise test for the dark data indicating some sort of CCD or analog electronics issue on that channel or channels. Go to **"CCD service check" on page 2-60**.
845.01	Rear scan module cable failure or SCC card failure	CCD channel failure. Check each channel(mono, R, G, B) for identical values indicating bad cable and/or SCC card. Excessive noise test for the dark data indicating some sort of CCD or analog electronics issue on that channel or channels. Go to **"CCD service check" on page 2-60**.
845.02	Cable/SCC failure.	Front scan module connector or cable failure Go to **"CCD service check" on page 2-60**.
845.03	Cable/SCC failure	Rear scan module connector or cable failure Go to **"CCD service check" on page 2-60**.
845.04	Cable failure	The connector cable is defective. Go to **"CCD service check" on page 2-60**.
846	Front calibration strip unusable	Go to **"CCD service check" on page 2-60**.
846.01	Rear calibration strip unusable	
846.02	Front calibration strip too far left	The font calibration strip is placed to high or to low. Go to **"CCD service check" on page 2-60**
846.03	Front calibration strip too far right	Go to **"CCD service check" on page 2-60**.
846.04	Front calibration strip has excessive skew	
846.05	Front calibration strip has excessive bow	

Service error messages

Error code	Description	Action
846.06	Front calibration strip has excessive dark area.	Front excessive variability for Mono, Red, Green, or Blue. Go to **"CCD service check" on page 2-60**.
846.07	Front magnification exceeds limits	Rear excessive variability for Mono, Red, Green, or Blue. Go to **"CCD service check" on page 2-60**.
847	Modem failure	The Configuration ID bit that describes the device's modem doesn't match the actual modem installed in the device.
847.01	Fax storage	The amount of flash storage available on the device is too small. **Note:** The NAND Flash partition can shrink as bit failures cause blocks to be invalidated. Go to **"Format Fax Storage" on page 3-37**. If the issue is not fixed, replace the RIP board. Go to **"RIP board removal" on page 4-19**.
847.02	Fax storage	The devices' flash partition is invalid or unavailable. Go to **"Format Fax Storage" on page 3-37**. If the issue is not fixed, replace the RIP board. Go to **"RIP board removal" on page 4-19**.
848	Modem/Config ID mismatch	A device doesn't have a modem installed, even though its Configuration ID indicates that a modem should be present.
848.01	Modem/Config ID Mismatch	A device has a modem installed, but its Configuration ID indicates that a modem shouldn't be present.
849	HD/Config ID mismatch	A device doesn't have a hard drive installed, even though its Configuration ID indicates that a hard drive should be present.
849.01	HD/Config ID mismatch.	A device has a hard drive installed, but its Configuration ID indicates that a hard drive shouldn't be present.
9xx.xx service errors		
900.*xx* Service RIP Software	Unrecoverable RIP software error/ illegal trap.	Go to **"900.xx system software error service check" on page 2-28**.
902.*xx* Service Engine Software	A general engine software error.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
903.*xx* Service Engine Software	A general engine software error.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
904.*xx* Service Engine Software	A general engine software error.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
905.*xx* Service Engine Software	A general engine software error.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
906.*xx* Service Engine Software	A general engine software error.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**

Service error messages

Error code	Description	Action
907.*xx* Service Engine Software	A general engine software error.	Go to **"90x.xx error (902.xx–907.xx) service check" on page 2-31**
908.01 Service Engine Software	Board level was not obtained.	
908.02 Service Engine Software	Timeout waiting for bullet serial data to be updated.	
908.03 Service Engine Software	NVM_OK was not received from NV2 server for successfully submitted request.	
908.04 Service Engine Software	Over temperature condition detected.	
925.01 Service Main Fan	Main fan stalled	Go to **"925.01 fan error service check" on page 2-31**
929.*xx* Service Toner Sensor	The printer doesn't register a transition on the toner sensor for a set period of time. Either the printer's toner sensor is faulty or its print cartridge is defective.	The Servicer should follow these steps to resolve this problem: 1. Use the base sensor test in Diagnostics mode to inspect the toner sensor's operation. 2. If the toner sensor is operating correctly, then the problem is the print cartridge.
930.*xx* Service LVPS	Low voltage power supply did not detect zero crossing.	Replace the LVPS. Go to **"Low-voltage power supply (LVPS) assembly removal" on page 4-48.**
940.xxService Cyan TMC Sensor	The cyan cartridge toner meter cycle (TMC) switch error. .01—Recoverable .02—Non-recoverable	Go to **"Toner sensors (Y, C, M, K) on TMC card service check" on page 2-55**.
941.xx Service Magenta TMC Sensor	The magenta cartridge toner meter cycle (TMC) switch error. .01—Recoverable .02—Non-recoverable	Go to **"Toner sensors (Y, C, M, K) on TMC card service check" on page 2-55**.
942.xx Service Yellow TMC Sensor	The yellow cartridge toner meter cycle (TMC) switch error. .01—Recoverable .02—Non-recoverable	Go to **"Toner sensors (Y, C, M, K) on TMC card service check" on page 2-55**.
943.xx Service Black TMC Sensor	The black cartridge toner meter cycle (TMC) switch error. .01—Recoverable .02—Non-recoverable	Go to **"Toner sensors (Y, C, M, K) on TMC card service check" on page 2-55**.
948.*xx* Service Engine Card	The pel clock check failed.	If this error message persists, replace the RIP board. Go to **"RIP board removal" on page 4-19**.
949.*xx* Service Engine Card	Delay line calibration failure	If this error message persists, replace the RIP board. Go to **"RIP board removal" on page 4-19**.

Service error messages

Error code	Description	Action
950.*xx* Service NVRAM Failure	There is a mismatch between controller EEPROM and mirror. • 950.00 through 950.29 codes—Mismatch between controller and mirror. • 950.30 through 950.60 codes—Mismatch between secure and controller.	Go to **"950.xx NVRAM failure service check" on page 2-32**.
951.*xx* Service NVRAM Failure	Mismatch between controller EEPROM and mirror. • 951.00 through 951.29 codes—Mismatch between controller and mirror. • 951.30 through 951.60—Mismatch between secure and controller.	
952.*xx* Service NVRAM Failure	A recoverable MVRAM Cyclic Redundancy Check (CRC) error occurred. "*n*" is the offset at which the error occurred.	Performing a POR will clear this error.
953.*xx* Service NVRAM Failure	NVRAM chip failure with mirror.	
954.*xx* Service NVRAM Failure	The NVRAM chip failure with controller part.	
955.*xx* Service Code CRC <*loc*>	The Code ROM or NAND flash failed the Cyclic Redundancy Check (CRC) check or the NAND experienced an uncorrectible multi-bit failure. "<*loc*>" indicates the source of the failure and has one of the following values: • **CRC Failure**: The source is a failing package indicated by P*n* where "*n*" is the package number. This error could occur on a controller with ROM or NAND flash and could occur as a result of the CRC check done when the machine is powered on. The range of package numbers is from 0 to 15. • **Error Correction Code (ECC) Failure**: The source is a failing page indicated by B*n* where "*n*" is the page number. This error occurs only if a multi-bit failure is detected during the ECC execution. Single bit failures will be corrected automatically and will not result in a service error. The range of page numbers is from 0 to 1023.	
956.00 Service RIP board	RIP board failure. Processor failure.	Replace the RIP board. Go to **"RIP board removal" on page 4-19**.
956.01 Service RIP board	Processor over temperature.	
957.*xx* Service RIP board	RIP board failure. ASIC failure.	

Service error messages

Error code	Description	Action
958.*xx* Service NAND Failure	Printer has performed more than 100 “shift and reflash” operations as a result of ECC bit corrections.	
959.01 Service Invalid Firmware	Controller verification failure of pensive boot code.	Update firmware or replace RIP board. Go to **“RIP board removal” on page 4-19**.
959.02 Service Invalid Firmware	Failure to authenticate signature verification code.	Update firmware or replace RIP board. Go to **“RIP board removal” on page 4-19**.
959.03 Service Invalid Firmware	Signature verification code failure to authenticate a code partition.	Update firmware or replace RIP board. Go to **“RIP board removal” on page 4-19**.
959.04 Service Invalid Firmware	Jump to unverified address.	Update firmware or replace RIP board. See**“RIP board removal” on page 4-19**.
959.05 Service Invalid Firmware	Unknown boot failure.	Update firmware or replace RIP board. See**“RIP board removal” on page 4-19**.
959.20 Service RIP board	System hardware failure.	Replace RIP board. See**“RIP board removal” on page 4-19**.
959.21 ServicRIP boarde RIP board	System did not respond to command request.	Replace RIP board. See**“RIP board removal” on page 4-19**.
959.22 Service RIP board	Challenge secret failure.	ASIC/SP mismatch Replace RIP board. See**“RIP board removal” on page 4-19**.
959.23 Service RIP board	System self test failure during initialization.	Replace RIP board. See**“RIP board removal” on page 4-19**.
959.24 Service RIP board	EEPROM retention error (write failure).	Replace RIP board. See**“RIP board removal” on page 4-19**.
959.25 Service RIP board	Insufficient device space during hardware programming.	Replace RIP board. See**“RIP board removal” on page 4-19**.
959.26 Service RIP board	Incremental counter reset exceeds maximum value.	Replace RIP board. See**“RIP board removal” on page 4-19**.
959.27 Service RIP board	Increment count failed due to maximum value limit.	Replace RIP board. See**“RIP board removal” on page 4-19**.
959.28 Service RIP board	Invalid SP memory configuration.	Replace RIP board. See**“RIP board removal” on page 4-19**.
960.*xx* Service Memory Error	RAM memory error—RAM soldered on the board is bad.	Replace RIP board. See**“RIP board removal” on page 4-19**.
961.*xx* Service Memory Failure	RAM memory error—Slot 1 RAM is bad.	Check RAM. If RAM is ok, replace the controller. See**“RIP board removal” on page 4-19**.
962.*xx* Service Memory Failure	RAM memory error—Slot 2 RAM is bad.	Check RAM. If RAM is ok, replace the controller. See**“RIP board removal” on page 4-19**.

Service error messages

Error code	Description	Action
964.*xx* Service Emulation Error	Download emulation cyclic redundancy check (CRC) failure has occurred. A checksum failure detected in the emulation header or emulation file.	The following actions may be taken: 1. Disable the Download Emulation. 2. Program the download emulation into the code overlay SIMM again. 3. If the problem is not resolved replace the code overlay SIMM, and download emulation again.
975.*xx* Service Standard Network or 975.*xx* Service Network Card *x*	Network error—Unrecognizable network port.	Replace the standard network card or the card in the specified slot.
976.*xx* Service Standard Network or 976.*xx* Service Network Card *x*	Unrecoverable software or error in network or network port.	If unable to clear the error message, check the following: • If installed, check the RIP board for correct installation. • If correctly installed, replace the RIP board. See**"RIP board removal" on page 4-19**.
979.*xx* Service Standard Network or 979.xx Service Network Card *x*	Flash parts failed while programming the network port.	Check the following: • If installed, check the RIP board for correct installation. • If correctly installed, replace the RIP board. See**"RIP board removal" on page 4-19**
982.*xx* Service <*device*> Comm.	Communications error detected by the specified device. **Note**: <*device*> can be one of the following: • Duplex unit • Tray 2 • Tray 3	
990.*xx* Service <*device*>	This error message indicates that an equipment check condition has occurred in the specified device, but the device is unable to identify the exact component failure. **Note**: <*device*> can be one of the following: • Duplex unit • Tray 2 • Tray 3	

Fax error log codes

Error code	Description	Action
000	No error occurred during fax transmission.	No action needed.
200	Error occurred when transmitting training.	• Check line quality. • Select a lower **Max Speed** value under **Fax Send** settings. • Adjust the transmit level.
3xx	Error occurred when receiving image data.	• Check line quality. • Adjust **Receive Threshold**. • Select a lower **Max Speed** value under **Fax Send** settings.
4xx	Error occurred when sending image data.	• Check line quality. • Adjust **Transmit Level**. • Select a lower **Max Speed** value under **Fax Send** settings.
5xx	Received unknown response from remote fax device.	No action needed. Issue is with the other device.
6xx	Error occurred when receiving a frame.	• Check line quality. • Adjust 'Receive Threshold'.
7xx	Error occurred when sending a frame.	• Check line quality. • Adjust **Transmit Level**. • Select a lower **Max Speed** value under **Fax Send** settings.
800	Received EOT unexpectedly from the modem in V.34 mode.	If error persists disable V.34 modulation scheme.
802	Too many timeouts occurred during ECM reception.	If error persists disable ECM mode.
803	Fax canceled by user.	No action needed.
804	Unexpectedly received a disconnect command from the remote end.	• Check line quality. • Adjust **Transmit Level/Receive Threshold** values. • Remote device could be requesting an unsupported feature.
805	Remote fax device failed to respond to the DCS command.	• Adjust **Transmit Level/Receive Threshold** values. • Remote device could be malfunctioning.
808	T1 timeout occurred when trying to establish a connection with a remote fax device.	• Adjust **Transmit Level/Receive Threshold** values.
809	T2 Timeout occurred due to loss of command/response synchronization.	• Adjust **Transmit Level/Receive Threshold** values.
80A	T5 Timeout occurred when transmitting image data to remote fax device.	• Check line quality. • Adjust **Transmit Level**. • Select a lower **Max Speed** value under **Fax Send** settings.

Fax error log codes

Error code	Description	Action
80B	Too many errors when transmitting in ECM mode.	• Check line quality. • Adjust **Transmit Level**. • Select a lower **Max Speed** value under **Fax Send** settings.
80C	Remote device failed to respond to the CTC command.	• Adjust **Transmit Level**. • Select a lower **Max Speed** value under **Fax Send** settings.
80D	Received too many requests from remote end to repeat the previous command sent.	• Check line quality. • Adjust **Transmit Level**. • Check if line conditions on remote end will facilitate a good connection.
80E	Functional limitation—Remote fax device does not support G3 receive capability.	No action needed. Issue with the remote device.
811	Failed to detect a fax device at the remote end.	• Verify MFD is answering to fax call and not a voice call. • Decrease value of **Rings To Answer** setting.
812	No more data rates available in V34 modulation scheme.	• Adjust to a lower modulation scheme.
813	Timeout occurred after waiting too long to receive a good frame.	• Adjust **Receive Threshold**.
814	Tried too many times at selected speed using V.34 modulation scheme.	• Adjust **Transmit Level**. • Adjust to a lower modulation scheme.
815	Fax transmission was interrupted due to power failure.	Troubleshoot MFP. If the error persists, see **“Modem/fax card service check” on page 2-66**.
818	Fax transmission failed due to insufficient memory to store scanned image.	Adjust **Memory Use** to allocate more memory for send jobs.
819	Fax transmission failed due to insufficient memory to store received image.	Adjust **Memory Use** to allocate more memory for send jobs.
81A	A timeout occurred during transmission of a page in ECM mode.	Select a lower **Max Speed** value under Fax Send settings.
880	Failure to transmit training successfully in V17, V29, V27 terminal modulation schemes.	• Select a lower **Max Speed** value under Fax Send settings. • Adjust the “Transmit Level”. • Check line quality.
881	Failure to transmit training successfully in V33, V29, V27 terminal modulation schemes.	• Select a lower **Max Speed** value under Fax Send settings. • Adjust **Transmit Level**. • Check line quality.
882	Failure to transmit training successfully in V17, V29 terminal modulation schemes.	• Select a lower **Max Speed** value under Fax Send settings. • Adjust **Transmit Level**. • Check line quality.

Fax error log codes

Error code	Description	Action
883	Failure to transmit training successfully in V.17, V.27 terminal modulation schemes.	• Select a lower **Max Speed** under **Fax Send** settings. • Adjust **Transmit Level**. • Check line quality.
884	Failure to transmit training successfully in V.29, V.27 terminal modulation schemes.	• Select a lower **Max Speed** under **Fax Send** settings. • Adjust **Transmit Level**. • Check line quality.
885	Failure to transmit training successfully in V.17 terminal modulation scheme.	• Select a lower **Max Speed** under **Fax Send** settings. • Adjust **Transmit Level**. • Check line quality.
886	Failure to transmit training successfully in V.29 terminal modulation scheme.	• Select a lower **Max Speed** under **Fax Send** settings. • Adjust **Transmit Level**. • Check line quality.
887	Failure to transmit training successfully in V.27 terminal modulation scheme.	• Select a lower **Max Speed** under **Fax Send** settings. • Adjust **Transmit Level**. • Check line quality.
888	Failure to transmit training successfully at 2400 bps in V.27 terminal modulation scheme.	• Adjust **Transmit Level**. • Check line quality.
889	Failed to connect at the minimum speed supported by the MFP.	• Adjust **Transmit Level**. • Incompatible connection.
88A	Failed to connect using V.34 modulation scheme.	• Check line quality. • Adjust to a lower modulation scheme. • Adjust **Transmit Level Receive Threshold** values.
901	No fax tones detected from remote end.	• Verify destination phone number. • Verify that the remote fax is authorized to receive faxes.
902	No dial tone detected.	• Check by enabling **Behind a PABX** setting. • Check phone line. • Check MFD modem hardware.
903	Busy tone detected.	Check with remote end if successive attempts fail.
904	Hardware error detected.	See **“Modem/fax card service check” on page 2-66**.
905	A timeout occurred after dialing the number and waiting for a response.	Check with remote end if successive attempts fail.
906	Fax cancelled by user.	No action needed.
907	Modem detected a digital line connection.	Verify the MFP is connected to an analog line. See**“Fax transmission service check” on page 2-67**.
908	Phone line was disconnected	Restore phone line connection.

Fax error log codes

Error code	Description	Action
A00	Received request for unsupported function from remote fax device.	No action needed.
A01	Received request for unsupported image width from remote fax device.	No action needed.
A02	Received request for unsupported image resolution from remote fax device.	No action needed.
A03	Received request for unsupported compression type from remote fax device.	No action needed.
A04	Received request for unsupported image length from remote fax device.	No action needed.
F00	Unknown error occurred.	No action needed.

Service checks

	CAUTION Service checks which involve measuring voltages on the LVPS/HVPS (low voltage power supply/high voltage power supply board) should be performed with the printer positioned on its back side. **Note:** When making voltage readings, always use frame ground unless another ground is specified. See the wiring diagram in the back of the book for more information.

900.xx system software error service check

There are different types of 900.xx errors that can occur. There may be a communication problem (Bad cable, network connection, and so on) software issue, or a hardware problem with the RIP board, or ISP (Internal solutions port). The communication and software aspects should be checked first. Determine if the problem is constant or intermittent. Use the troubleshooting procedure below to isolate the issue. Take any notes as instructed. You will need that information in the event you need to contact your next level of support.

Note: Before troubleshooting, determine the operating system used when the error occurred. If possible determine whether a PostScript or PCL file was sent to the device when the error occurred. Ask the customer which Lexmark Solutions applications are installed on the device.

Step	Action and questions	Yes	No
1	POR the device. **Does the error reoccur?**	Go to step 2.	Problem resolved.
2	• Write down the exact 900.xx error code displayed. • Turn the device off. • Clear the print queues. • Disconnect all communication cables, and remove all memory options. • Remove all ISP and modem cards. • Restart the device into Diagnostics mode. **Does the 900.xx error reoccur during startup?**	Go to step 3.	Go to step 6.
3	Check all the cables connected to the RIP board for proper connectivity. **Are the cables properly connected?**	Go to step 5.	Go to step 4.
4	Properly connect the cables to the RIP board. Restart the device into Diagnostic mode. **Does the 900.xx error reoccur during startup?**	Go to step 5.	Go to step 6.
5	Replace the RIP board, and restart the device. **Does this fix the problem?** **Note:** If an error, different from the original 900.xx, is displayed, consult the service check for that error.	Problem resolved.	Go to step 31.

Step	Action and questions	Yes	No
6	Print the following: • Error log • Menu settings page • Network settings page **Does the 900.xx error reoccur while these pages were printing?**	Go to step 31.	Go to step 7.
7	Re-attach the communications cable. Restart the printer to operating mode. Send the printer a print job. **Does the 900.xx error reoccur?** **Note:** Before performing this step, write down this information about the file being sent to the printer: • Application used • Operating system • Driver type • File type (PCL, PostScript, XPS, etc.)	Go to step 8.	Go to step 10.
8	Restart the printer to operating mode. Send a different print job to the device. **Does the 900.xx error reoccur?**	Go to step 9.	Go to step 10.
9	Upgrade the firmware. Contact your next level of support for the correct firmware level to use. Restart the printer to operating mode. Send the printer a print job. **Does the 900.xx error reoccur?**	Go to step 31.	Go to step 10.
10	**Is the device a Multi-function printer?**	Go to step 11.	Go to step 13.
11	Run a copy job. **Does the 900.xx error reoccur?**	Go to step 31.	Go to step 12.
12	Run a scan to PC job. **Does the 900.xx error reoccur?**	Go to step 31.	Go to step 13.
13	**Is there optional memory installed?**	Go to step 14.	Go to step16.
14	Reinstall the memory, and send a print job to the device. **Does the 900.xx error reoccur?**	Go to step 15.	Go to step 16.
15	Install a Lexmark recommended memory option. Send a print job to the device. **Does the 900.xx error reoccur?**	Go to step 31.	Problem resolved.
16	**Is there a modem installed on the device?**	Go to step 17.	Go to step 21.

Step	Action and questions	Yes	No
17	Reinstall the modem. Restart the device. **Does the 900.xx error reoccur?**	Go to step 18.	Go to step 20.
18	Upgrade the firmware. Contact your next level of support for the correct firmware level to use. Restart the printer to operating mode. Send the printer a print job. **Does the 900.xx error reoccur?**	Go to step 19.	Problem resolved.
19	Replace the modem. Restart the device. **Does the 900.xx error reoccur?**	Go to step 31.	Problem resolved.
20	Run a fax job. **Does the 900.xx error reoccur?**	Go to step 31.	Go to step 21.
21	**Are there any ISP (internal solutions port) options installed?**	Go to step 22.	Problem resolved.
22	Reinstall the first ISP option. Restart the device. **Does the 900.xx error reoccur?**	Go to step 24.	Go to step 23.
23	Run a job to test the option. **Does the 900.xx error reoccur?**	Go to step 24.	Go to step 26.
24	Upgrade the firmware. Contact your next level of support for the correct firmware level to use. Restart the printer to operating mode. **Does the 900.xx error reoccur?**	Go to step 25.	Problem resolved.
25	Replace the faulty ISP option. Restart the device. **Does the 900.xx error reoccur?**	Go to step 31.	Go to step 26.
26	**Are there any more ISP options to install?**	Go to step 27.	Problem resolved.
27	Install the next ISP option. Restart the device. **Does the 900.xx error reoccur?**	Go to step 29.	Go to step 28.
28	Run a job to test the option. **Does the 900.xx error reoccur?**	Go to step 29.	Go to step 26.
29	Upgrade the firmware. Contact your next level of support for the correct firmware level to use. Restart the printer to operating mode. **Does the 900.xx error reoccur?**	Go to step 30.	Go to step 26.

Step	Action and questions	Yes	No
30	Replace the faulty ISP option. Restart the device. **Does the 900.xx error reoccur?**	Go to step 31.	Go to step 26.
31	Contact your next level of support. You will need the following information for them: • Exact 900.xx error digits and complete error message • Printed menu settings page • Printed network settings page • Device error log • A sample print file if error appears to be isolated to a single file • File/Application used if error is related to specific print file • Device Operating System • Driver used (PCL/PS) • Frequency of the occurrence of the error		

90x.xx error (902.xx–907.xx) service check

Step	Questions / actions	Yes	No
1	Turn the printer off, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Check the cable connections. **Are all the cable connections secure?**	Replace the RIP board. See **"RIP board removal" on page 4-19**.	Securely make all the connections. POR the printer.

925.01 fan error service check

Step	Questions / actions	Yes	No
1	Turn off the printer, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Unplug the fan cable at JFAN1 and turn the printer on. Check the following connectors: **JFAN1** **Pin** / **Voltage** 1 / +3.3 V dc 2 / Ground 3 / +24 V dc **Are the measured values correct?**	Replace the top cover (which includes the fan). See **"Top cover assembly removal" on page 4-9**.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

950.xx NVRAM failure service check

Warning: Replace one of the following components, and perform a POR before replacing a second component. Never replace both of the components without performing a POR after installing each one, or the printer will be rendered inoperable:

- Operator panel assembly
- RIP board

Warning: Never install and remove components listed above as a method of troubleshooting components. **Once a component has been installed in a printer, and the printer is powered on, it cannot be used in another printer. It must be returned to the manufacturer.**

This error code indicates a mismatch between the operator panel assembly and the RIP board.

Step	Questions / actions	Yes	No
1	**Have any updates been made to the firmware?**	Reload the firmware and try again. Go to step 2.	Replace the RIP board with a new, and not previously installed RIP board. See **"RIP board removal" on page 4-19**.
2	**Does reloading the firmware correct the problem?**	Problem resolved.	Replace the RIP board with a new, and not previously installed RIP board. See **"RIP board removal" on page 4-19**.

Autocompensator mechanism service check

Note: The input (S2) sensor is part of the autocompensator mechanism (ACM), and is not available separately.

Step	Questions / actions	Yes	No
1	Turn the printer off, and then remove the rear shield. See **"Rear shield removal" on page 4-7**. Check the cable at JSP1 on the RIP board for proper connection. **Is the cable properly connected?**	Go to step 3.	Properly connect the cables, and POR the printer. Go to step 2.
2	**Did the printer function correctly after reconnecting the cables?**	Problem resolved.	Go to step 3.

<table>
<tr><th>Step</th><th>Questions / actions</th><th>Yes</th><th>No</th></tr>
<tr><td>3</td><td>Turn the printer on, and then verify the following approximate values at JSP1:
<table><tr><th colspan="2">JSP1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>2</td><td>+24 V dc</td></tr><tr><td>4</td><td>+24 V dc</td></tr><tr><td>5</td><td>+5V (when paper is picked)</td></tr><tr><td>7</td><td>Ground</td></tr><tr><td>8</td><td>Ground</td></tr><tr><td>10</td><td>+5 V dc</td></tr><tr><td>12</td><td>-5 V dc (when paper is picked)</td></tr><tr><td>15</td><td>+5 V dc</td></tr><tr><td>16</td><td>Ground</td></tr></table>
Are the values approximately correct?</td><td>Replace the autocompensator mechanism. See “Autocompensator mechanism (ACM)—standard tray removal” on page 4-13.</td><td>Replace the RIP board. See “RIP board removal” on page 4-19.</td></tr>
</table>

Bin full sensor service check

<table>
<tr><th>Step</th><th>Questions / actions</th><th>Yes</th><th>No</th></tr>
<tr><td>1</td><td>Inspect the bin full sensor located towards the rear of the top cover assembly.

Is the bin full sensor dislodged or damaged?</td><td>Repair or replace the bin full sensor. See“Bin full sensor removal” on page 4-16.</td><td>Go to step 2.</td></tr>
<tr><td>2</td><td>With the scanner assembly in the down position, perform the standard bin sensor base sensor test. See “BASE SENSOR TEST” on page 3-20. Toggle the bin full flag attached to the rear shaft of the redrive unit.

Does the flag rotate freely and interrupt the sensor beam when in normal position?</td><td>Go to step 3.</td><td>Reposition or replace the flag. If the flag is broken, replace the bin full flag. See“Bin full flag removal” on page 4-99.</td></tr>
<tr><td>3</td><td>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-7. Turn the printer on, and then check the values below at JBIN1:
<table><tr><th colspan="2">JBIN1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>1</td><td>> 0 V dc, +5V dc during cycle</td></tr><tr><td>2</td><td>+3.3 V dc beam blocked
0 V dc unblocked</td></tr><tr><td>3</td><td>Ground</td></tr></table>
Are the values correct?</td><td>Problem resolved.</td><td>Replace the RIP board. See “RIP board removal” on page 4-19.</td></tr>
</table>

Dead printer service check

A dead printer is a condition where the display is blank, the LED on the operator panel is off, the fan does not turn, no motors turn, and the fuser does not heat.

If a 650-sheet duo drawer is installed, remove the option and check the base printer for correct operation. If the base printer operates correctly, replace the 650-sheet duo drawer.

Warning: Observe all necessary ESD precautions when removing and handling the RIP board or any installed option cards or assemblies. See **"Handling ESD-sensitive parts" on page 4-1**.

Remove any input paper handling options from the printer.

<table>
<tr><th>Step</th><th>Questions / actions</th><th>Yes</th><th>No</th></tr>
<tr><td>1</td><td>Check the AC line voltage.

Is the line voltage correct?</td><td>Go to step 2.</td><td>Inform the customer.</td></tr>
<tr><td>2</td><td>Is the AC line cord damaged?</td><td>Replace the line cord.</td><td>Go to step 3.</td></tr>
<tr><td>3</td><td>Is the JLVPS1 cable correctly connected at JLVPS1 on the RIP board?</td><td>Go to step 5.</td><td>Reconnect the JLVPS1 cable, and go to step 4.</td></tr>
<tr><td>4</td><td>Turn the printer off, and then on.

Does the problem persist?</td><td>Go to step 5.</td><td>Problem resolved.</td></tr>
<tr><td>5</td><td>Warning: Damage to the printer is possible. Be careful to touch only one conductor at a time. Rest the probe against the connector to steady it.
With the printer on.verify the following values at JLVPS1:
<table>
<tr><th colspan="4">JLVPS1 (exposed conductors)</th></tr>
<tr><th>Pin</th><th>Value</th><th>Pin</th><th>Value</th></tr>
<tr><td>1</td><td>+5 V dc</td><td>2</td><td>Ground</td></tr>
<tr><td>3</td><td>+5 V dc</td><td>4</td><td>Ground</td></tr>
<tr><td>5</td><td>+5 V dc</td><td>6</td><td>Ground</td></tr>
<tr><td>7</td><td>+24 V dc</td><td>8</td><td>Ground</td></tr>
<tr><td>9</td><td>+24 V dc</td><td>10</td><td>Ground</td></tr>
<tr><td>11</td><td>+24 V dc</td><td>12</td><td>Ground</td></tr>
<tr><td></td><td></td><td>16</td><td>Ground</td></tr>
</table>
Are the values approximately correct?</td><td>Replace the RIP board. See **"RIP board removal" on page 4-19**.</td><td>Replace the LVPS. See **"Low-voltage power supply (LVPS) assembly removal" on page 4-48**.</td></tr>
</table>

Duplex/manual feed sensor (S1) service check

Note: Before performing this service check, ensure that the printer is on a hard level surface.

Step	Questions / actions	Yes	No
1	Enter the Diagnostics Menu. 1. Turn off the printer. 2. Press and hold **3** and **6**. 3. Turn on the printer. 4. Release the buttons when the progress bar appears. Perform the Base Sensor Test. See **"BASE SENSOR TEST" on page 3-20**. 1. Navigate to **BASE SENSOR TEST > Input - S1**. 2. Install Tray 1. **Does the display indicate** `Input - S1: Media Clear`**?**	Go to step 2.	Go to step 4.
2	Pull Tray 1 out. **Does the display indicate** `Input - S1: Media Present`**?**	The sensor is functioning correctly.	Go to step 3.
3	Remove the tray, and inspect sensor. **Is there something obstructing the sensor?**	Remove the obstruction and restart the test.	Go to step 4.
4	Inspect the spring-loaded shaft/flag in the tray. The flag portion of the shaft intercepts the sensor, except when a sheet is being staged for duplexing. **Does the shaft rotate freely and return to home position (flag at top of rotation)?**	Go to step 5.	Replace the tray with a new one.
5	**Is the flag on the shaft broken?**	Replace the tray.	Go to step 6.
6	Is the cable correctly connected to JFUSES1 on the RIP board and to the sensor. **Is the sensor cable properly connected?**	Go to step 7.	Reconnect the cable. If the problem persists, go to step 7.
7	Turn the printer off, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Turn the printer on, and check the values at JFUSES1: **JFUSES1** **Pin** / **Value** 8 / Ground 9 / +3.3 V dc **Are the values approximately correct?**	Replace the duplex sensor. See **"Duplex sensor removal" on page 4-29**.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Front door sensor or switches service check

Step	Questions / actions	Yes	No
1	POR the device into Diagnostics mode. 1. Turn off the printer. 2. Press and hold **3** and **6**. 3. Turn on the printer. 4. Release the buttons when the progress bar appears. Perform the Base Sensor Test. See **"BASE SENSOR TEST" on page 3-20**. 1. Navigate to **BASE SENSOR TEST > Front Door**. 2. Open and close the front door, and observe the display. **Does the display indicate** `Front Door: Closed` **with the door closed and** `Front Door: Open` **with the door opened?**	Sensor, toner door, and right doors are OK.	Go to step 2.
2	Open the front door and check the thin, tall, plastic web (pivot plate) at the top right of the printer. With the other covers in place and closed, this web interacts with switches in the door. **Open the toner cover and check the motion of the web. Is the web loose, damaged, or missing?**	Replace the right cover assembly. See **"Right cover removal" on page 4-7**.	Go to step 3.
3	Open the toner door and inspect the vertical web that pushes and rotates the pivot plate. **Is it damaged?**	Replace the top cover assembly. See **"Top cover assembly removal" on page 4-9**.	Go to step 4.
4	With the front cover open, inspect the two switches. Using a tool, such as a spring hook, push the metal arms to check the movement. **Is there any damage to the switches or the surrounding area?**	Replace the right cover assembly. See **"Right cover removal" on page 4-7**.	Go to step 5.
5	Turn the printer off, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Turn the printer on, and verify the following values at JINT1 and JCVR1: **JINT1** / **JCVR1** **Pin** / **Value** / **Pin** / **Value** 1 / +5 V dc / 1 / +24 V dc 2 / Ground **Are the values approximately correct?**	Go to step 6.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Step	Questions / actions	Yes	No
6	Close the front cover and the toner door. Be sure the right cover is in place. Turn the printer off, and then disconnect the cables at JINT1 and JCVR1. Test continuity at the connector under the following conditions: • **With front cover and toner door closed**: Test pin 1 and pin 3 at JINT1 cable end and pin 1 and pin 2 at JCVR1 cable end. • **With one or both doors open**: Pins 2 and 3 at JINT1 cable end should indicate continuity, but pins 1 and 2 at JCVR1 should have no continuity. **Are the tests verified?**	Contact your next level of support.	Replace the front cover assembly. See **"Front cover assembly removal" on page 4-3**.

Fuser exit sensor service check

Step	Questions / actions	Yes	No
1	Enter Diagnostics Menu. 1. Turn off the printer. 2. Press and hold **3** and **6**. 3. Turn on the printer. 4. Release the buttons when the progress bar appears. Perform the Base Sensor Test. See **"BASE SENSOR TEST" on page 3-20**. 1. Navigate to **BASE SENSOR TEST > Fuser Exit**. 2. Open and close the front door, and inspect the fuser exit sensor located on the LVPS shield. **Is the sensor dislodged or damaged?**	Correct the sensor or replace it. See **"Fuser exit sensor removal" on page 4-37**.	Go to step 2.
2	Rotate the flag (paper diverter) in and out of the sensor. **Does the display indicate** `Media Clear` **and** `Media Present` **with the cycle?**	Sensor is good.	Go to step 3.
3	**Does the flag rotate freely, but returns to block the sensor?**	Go to step 4.	Replace the fuser. See**"Fuser assembly removal" on page 4-32**.
4	Is the cable correctly connected to JBIN1 on the RIP board and to the sensor. **Is the sensor properly connected?**	Go to step 5.	Reconnect the cable.

Step	Questions / actions	Yes	No
5	Make sure the printer is turned off. Disconnect the cable at the sensor and at JBIN1 on the RIP board. Turn the printer on and check the voltage values: **JBIN1** **Pin** / **Value** 4 — 0 V dc +5V dc during cycle 5 — +0 V dc (unblocked), +3.3 V dc (unblocked) 6 — Ground **Are the voltage values approximately correct?**	Replace the fuser exit sensor. See **"Fuser exit sensor removal" on page 4-37**.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Fuser service check

Step	Questions / actions	Yes	No
1	Some low-voltage power supply FRUs have a voltage selector switch. If it does, the switch needs to be set to the correct voltage for your area. **Has the LVPS been changed?**	Check the switch on the side of the LVPS to verify the correct voltage is set.	Go to step 2.
2	Turn the printer off, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Check the cable at JFUSES1 for proper connection to the RIP board, the cable for pinch points, and the cable or connector for any other damage. **Is the cable damaged?**	Replace the fuser cable.	Go to step 3.
3	Check the connector JLVPS1 for proper connection to the RIP board, the cable for pinch points, and the cable or connector for any other damage. **Is the cable damaged?**	Repair or replace the LVPS cable. See **"Low-voltage power supply (LVPS) assembly removal" on page 4-48**.	Go to step 4.
4	Check the power cable on the left side of the fuser and the thermistor cables and connections on the right side of the fuser. **Are the cables or connectors damaged?**	Repair the cables. If the cables cannot be repaired, replaced the fuser. See **"Fuser assembly removal" on page 4-32**.	Go to step 5.

<table>
<tr><th>Step</th><th>Questions / actions</th><th>Yes</th><th>No</th></tr>
<tr><td>5</td><td>Disconnect the cable at JFUSES1 on the RIP board, and check the following voltages:
<table>
<tr><th colspan="2">JFUSES1</th></tr>
<tr><th>Pin</th><th>Value</th></tr>
<tr><td>1</td><td>+24 V dc (doors closed)</td></tr>
<tr><td>2</td><td>+24 V dc (doors closed)</td></tr>
<tr><td>3</td><td>+24 V dc (doors closed)</td></tr>
<tr><td>4</td><td>+24 V dc (doors closed)</td></tr>
<tr><td>5</td><td>Between 0.6 and 3.28 V dc</td></tr>
<tr><td>6</td><td>Ground</td></tr>
<tr><td>8</td><td>Ground</td></tr>
<tr><td>10</td><td>Between -3 and +3.3 V dc</td></tr>
<tr><td>11</td><td>Ground (no wire)</td></tr>
</table>
Are the values approximately correct?</td><td>Go to step 6.</td><td>Replace the RIP board. See “RIP board removal” on page 4-19.</td></tr>
<tr><td>6</td><td>Replace the fuser. See “Fuser assembly removal” on page 4-32.

Does the error clear?</td><td>Problem resolved.</td><td>Replace the RIP board. See “RIP board removal” on page 4-19.</td></tr>
</table>

Input sensor (S2) service check

The Input sensor (S2) is part of the autocompensator FRU and is not available otherwise.

<table>
<tr><th>Step</th><th>Questions / actions</th><th>Yes</th><th>No</th></tr>
<tr><td>1</td><td>Enter the Diagnostics Menu.
1. Turn off the printer.
2. Press and hold 3 and 6.
3. Turn on the printer.
4. Release the buttons when the progress bar appears.
Perform the Base Sensor Test. See “BASE SENSOR TEST” on page 3-20.
1. Navigate to BASE SENSOR TEST > Input - S2.
2. Pull Tray 1 out, and rotate the S2 sensor flag (S2 is located in front of the center autocompensator mechanism housing.) It should rotate freely and return to its original position.

Is the input sensor (S2) flag damaged?</td><td>Replace the autocompensator mechanism. Go to “Autocompensator mechanism (ACM)—standard tray removal” on page 4-13.</td><td>Go to step 2.</td></tr>
<tr><td>2</td><td>Watch the display while rotating the flag.

Does the display indicate
Input - S2: Media Clear and
Input - S2: Media Present?</td><td>Problem resolved.</td><td>Go to step 3.</td></tr>
</table>

Step	Questions / actions	Yes	No
3	Turn the printer off, and remove the rear shield. See **"Rear shield removal" on page 4-7**. **Is the JSP1 cable connector properly connected to the RIP board?**	Go to step 4.	Reseat the connector.
4	Turn the printer on, and check the voltage at JSP1 pin 15. **Is the voltage approximately +5 V dc?**	Replace the autocompensator mechanism. Go to **"Autocompensator mechanism (ACM)—standard tray removal" on page 4-13**.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Main drive gear assembly (EP drive) service check

Step	Questions / actions	Yes	No
1	Turn the printer off, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Check the cable at JCARTB1 for proper connection to the RIP board, the cable for pinch points, and the cable or connector for any other damage. **Is the cable damaged?**	Replace the JCARTB1 cable.	Go to step 2.
2	Disconnect the cable at JCARTB1 on the RIP board, and verify the following values. **JCARTB1** **Pin** / **Value** 4 / +24 V dc 6 / +24 V dc 8 / +24 V dc 9 / Ground 12 / Ground 13 / +24 V dc 15 / +24 V dc 17 / +24 V dc **Are the voltages correct?**	Go to step 3.	Replace the RIP board. See **"RIP board removal" on page 4-19**.
3	Replace the main drive assembly. See **"Main drive gear assembly with motor removal" on page 4-57**. **Does the error clear?**	Problem resolved.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Operator panel service checks

Warning: Replace one of the following components, and perform a POR before replacing a second component. Never replace both of the components without performing a POR after installing each one, or the printer will be rendered inoperable:

- Operator panel assembly
- RIP board

Warning: Never install and remove components listed above as a method of troubleshooting components. **Once a component has been installed in a printer, and the printer is powered on, it cannot be used in another printer. It must be returned to the manufacturer.**

One or more operator panel buttons fail

Step	Questions / actions	Yes	No
1	Check the cable connection between the RIP and the UICC, and check the connection from the UICC to the display. **Are the cables properly connected?**	Go to step 3.	Go to step 2.
2	Reconnect the cables. POR the device into Diagnostics mode, and perform the button test. See **"Button Test" on page 3-17**. **Do any of the buttons fail the test?**	Go to step 3.	Problem resolved.
3	Using a multimeter, check the cable connecting operator panel to the RIP board for continuity. **Is there continuity?**	Go to step 5.	Go to step 4.
4	Replace the UICC cable. See **"User interface controller card cable removal" on page 4-112**. POR the device into Diagnostics mode, and perform the button test. **Do any of the buttons fail the test?**	Go to step 5.	Problem resolved.
5	Replace the UICC. See **"User interface controller card removal" on page 4-113**. POR the MFP into Diagnostics mode, and perform the button test. **Do any of the buttons fail the test?**	Go to step 6.	Problem resolved.
6	Replace the RIP board. See **"RIP board removal" on page 4-19**. POR the device into Diagnostics mode, and perform the button test. **Do any of the buttons fail the test?**	Contact your next level of support.	Problem resolved.

Operator panel display is blank

Step	Questions / actions	Yes	No
1	Check the cable connections between the RIP board and the UICC, and check the connections from the UICC to the display. **Are the cables properly connected?**	Go to step 3.	Go to step 2.
2	Reconnect the cables. POR the device. **Does this fix the problem?**	Problem resolved.	Go to step 3.
3	Using a multimeter, check the UICC cable for continuity. **Is there continuity?**	Go to step 5.	Go to step 4.
4	Replace the defective cable. See **"User interface controller card cable removal" on page 4-112**. POR the device. **Does this fix the problem?**	Problem resolved.	Go to step 5.
5	**Are the LEDs on the operator panel lit?**	Go to step 6.	Go to step 7.
6	Replace the display. See **"LCD removal" on page 4-100**. **Does this fix the problem?**	Problem resolved.	Go to step 7.
7	Check connector JUIC1 on the RIP board for the following voltages and grounds: **JUIC1** **Pin** / **Voltage** 2 / Ground 9 / Ground 10 / 5.0 V dc 15 / Ground 16 / 5.0 V dc 17 / 5.0 V dc 18 / 5.0 V dc **Do the voltages and ground readings approximately match the table?**	Go to step 9.	Go to step 8.
8	Replace the RIP board. See **"RIP board removal" on page 4-19**. POR the device into Diagnostics mode. **Does this fix the problem?**	Problem resolved.	Go to step 9.

Step	Questions / actions	Yes	No
9	Replace the UICC. POR the device into diagnostics mode. **Does this fix the problem?**	Problem resolved.	Contact your next level of support.

Op panel USB cable service check

Step	Questions / actions	Yes	No
1	Check the op panel USB cable for continuity. **Is there continuity?**	Replace the RIP board. See **"RIP board removal" on page 4-19**.	Replace the USB cable. See **"USB cable removal" on page 4-112**.

USB service check

Step	Questions / actions	Yes	No
1	**Is the USB cable properly connected to the MFP and host PC?**	Go to step 2.	Properly connect the cable at both ends.
2	**Try a different USB cable. Does this fix the issue?**	Problem resolved.	Go to step 3.
3	**Connect a different device to the USB cable. Did the host PC see the device?**	Replace the RIP/RIP board. See **"RIP board removal" on page 4-19**.	There is an issue with the host machine.

Networking service check

Note: Before starting this service check, print out the network setup page. This page is found under Menu - Reports - Network Settings. Consult the network administrator to verify that the physical and wireless network settings displayed on the network settings page for the device are properly configured. If a wireless network is used, verify that the printer is in range of the host computer or wireless access point, and there is no electronic interference. Have the network administrator verify that the device is using the correct SSID, and wireless security protocols. For more network troubleshooting information, consult the Lexmark Network Setup Guide.

Step	Questions / actions	Yes	No
1	If the device is physically connected to the network, verify that the ethernet cable is properly connected on both ends. **Is the cable properly connected?**	Go to step 3. If the network is wireless, got to step 3.	Go to step 2.
2	Connect the ethernet cable. **Did this fix the problem?**	Problem resolved	Go to step 3.
3	Check the printer's online status under Printers and Faxes on the host computer. Delete all print jobs in the print queue. **Is the printer online and in a** Ready **state?**	Go to step 5.	Go to step 4.
4	Change the printer status to online. **Did this fix the issue?**	Problem resolved.	Go to step 5.
5	**Does the IP address displayed on the network settings page match the IP address in the port of the drivers using the printer?**	Go to step 10.	Go to step 6.
6	**Does the LAN use DHCP?** **Note:** A printer should use a static IP address on a network.	Go to step 7.	Go to step 9.
7	**Are the first two segments if the IP address 169.254?**	Go to step 8.	Go to step 9.
8	POR the printer. **Is the problem resolved?**	Problem resolved.	Go to step 10.
9	Reset the address on the printer to match the IP address on the driver. **Did this resolve the issue?**	Problem fixed.	Go to step 10.
10	Have the network admin verify that the printer and PC's IP address have identical subnet addresses. **Are the subnet addresses the same?**	Go to step 12.	Go to step 11.

Step	Questions / actions	Yes	No
11	Using the subnet address supplied by the network admin, assign a unique IP address to the printer. **Note:** The printer IP address should match the IP address on the printer driver. **Did this fix the problem?**	Problem resolved.	Go to step 12.
12	**Is the device physically connected (ethernet cable) to the network?**	Go to step 13.	Go to step15.
13	Try using a different ethernet cable. **Did this remedy the situation?**	Problem resolved	Go to step 14.
14	Have the network administrator check the network drop for activity. **Is the drop functioning properly?**	Replace the RIP board. See **"RIP board removal" on page 4-19**.	Contact the network administrator.

Print quality service checks

Note: This symptom may require replacement of one or more CRUs (Customer Replaceable Units) designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, you may need to install a developer (toner) cartridge or photo conductor unit.

Service tip

Before troubleshooting any print quality problems, do the following:

1. Print a menu settings page, and check the life status of all supplies. Any supplies that are low should be replaced.
   To print a Menu Settings page from the home screen, navigate to:
   > Reports > Menu Settings Page
   Note: Be sure and keep the original menu page to restore the customer's custom settings if needed.
2. On the menu page, make sure the following is set to the default level:
   - Color Correction: Set to Auto.
   - Print Resolution: Set to 1200 dpi (print quality problems should be checked at different resolution settings).
   - Toner Darkness: Set to 4 (default).
   - Color Saver: Set to OFF.
   - RGB Brightness, RGB Contrast, RGB Saturation: Set to 0.
   - Color Balance: Select Reset Defaults to zero out all colors.
   - Check the paper type, texture and weight settings against what is loaded in the printer.

Once the printer has been restored to its default levels, do the following:

1. Inspect the imaging unit for damage, including the developers and toner cartridges. Replace if damaged.
2. If paper other than 20lb plain letter/A4 paper is being used, load 20lb plain letter/A4.
3. Print the Print Quality pages to see if the problem remains. Look for variations in the print from what is expected.
   To print the quality pages:
   a. Enter the Diagnostics Menu (Turn off the printer, press and hold **3** and **6,** turn on the printer, and release the buttons when the progress bar appears.)
   b. Navigate to **PRINT TESTS** > **Print Quality Pages**.
   c. `Printing Quality Test Pages` appears and the pages print.

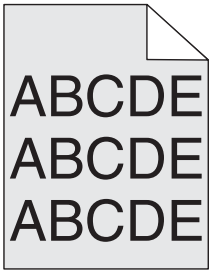
An incorrect printer driver for the installed software can cause problems. Incorrect characters could print, and the copy may not fit the page correctly.

Measure all voltages from the connector to the printer ground.

Print quality—background

Service tip: Some background problems can be caused by rough papers, non-Lexmark toner cartridges or if the media texture is set to the rough setting.

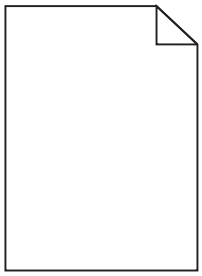
Some slick or coated papers may also cause background problems. Some problems occur with printers that run a large amount of graphics in a humid environment.



Step	Questions / actions	Yes	No
1	Read the current status of the imaging unit from the customer menus. To view the status of the photoconductor units: 1. In the Ready mode, touch . 2. Navigate to **Reports > Device Statistics**. It is possible a new imaging unit was installed, but the counter was not reset. **Has the imaging unit been recently replaced?**	Reset the value. To reset this value: 1. In the Ready mode, touch . 2. Navigate to **Supplies Menu > Replace Supplies**. 3. Select the imaging unit to reset. If this does not fix the problem, go to step 2.	Go to step 2.
2	**Is the background only one of the primary colors; yellow, cyan, magenta, or black?**	Replace the developer unit for the background color and retest. See **"Developer unit removal" on page 4-47**. Go to step 3.	Go to step 4.
3	**Did replacing the developer unit correct the problem?**	Problem resolved.	Go to step 4.
4	Replace the photoconductor unit. **Does this fix the problem?**	Problem resolved.	Go to step 5.
5	Check the high-voltage contact from the HVPS to the image transfer unit (ITU). **Is a problem found?**	Replace the failing part: • Image transfer unit (ITU). See **"Image transfer unit (ITU) removal" on page 4-43**. • High-voltage power supply (HVPS). See **"High-voltage power supply (HVPS) with spring assembly removal" on page 4-40**.	Go to step 6.
6	Reseat the cable in the JHVPS1 connector. **Does this fix the problem?**	Problem resolved.	Go to step 7.

Step	Questions / actions	Yes	No
7	Replace the HVPS. See **"High-voltage power supply (HVPS) with spring assembly removal" on page 4-40**. **Does this fix the problem?**	Problem resolved.	Go to step 8.
8	Clean the printhead. **Does this fix the problem?**	Problem resolved.	Replace the printhead. See **"Printhead removal" on page 4-61**.

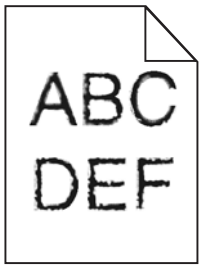
Print quality—blank page



Step	Questions / actions	Yes	No
1	Is all the packing material for the imaging unit in question removed?	Go to step 2.	Remove the packing material.
2	Print a document that requires all four colors with just a few characters to verify if one specific color is a problem. For example, print the Print Quality Test Pages: 1. Enter the Diagnostics Menu (Turn off the printer, press and hold **3** and **6,** turn on the printer, and release the buttons when the progress bar appears). 2. Navigate to **PRINT TESTS** > **Print Quality Pages**. 3. `Printing Quality Test Pages` appears and the pages print. **Is only one color missing?**	Replace the developer unit for the missing color.	Go to step 3.
3	Replace the imaging unit. See **"Developer unit removal" on page 4-47**. **Does this fix the problem?**	Problem resolved.	Go to step 4.

Step	Questions / actions	Yes	No
4	1. Remove the imaging unit and waste toner bottle. 2. Replace the right cover and close the front door. 3. Enter the Diagnostics Menu (turn off the printer, press and hold **3** and **6,** turn on the printer, and release the buttons when the progress bar appears), and run the appropriate cartridge drive motor test for the missing color. 4. Navigate to **MISC TESTS > Motor Detect**. **Did the motor run?**	Go to step 5.	Replace the Main drive gear assembly. See **"Main drive gear assembly with motor removal" on page 4-57**.
5	Remove the developer unit. See **"Developer unit removal" on page 4-47**. Check the developer cartridge contacts from the HVPS to the IU. **Are all the toner cartridge contacts clean on both the pin and IU?**	Go to step 6.	Clean the developer cartridge contacts. See **"Developer unit removal" on page 4-47**.
6	Are all the spring-loaded pin in the HVPS free to move in and out with an equal amount of spring force?	Go to step 7.	Replace the HVPS. See **"High-voltage power supply (HVPS) with spring assembly removal" on page 4-40**.
7	Turn the printer off, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Check the continuity between the spring-loaded pin and the JSC1 connector on the RIP board. **Are all conductors continuous?**	Go to step 8.	Replace the cable.
8	Replace the printhead. See **"Printhead removal" on page 4-61**. **Did this fix the problem?**	Problem resolved.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Print quality—blurred or fuzzy print



Run the automatic alignment. The TPS sensor may be damaged. To run Reset Color Cal:

1. Enter the Diagnostics Menu.
   a. Turn off printer.
   b. Press and hold **3** and **6**.
   c. Turn on the printer.
   d. Release the buttons when the progress bar appears.
2. Navigate to **TPS Setup > Reset Color Cal**.
3. `Resetting` appears. When the reset is complete, the display returns to TPS Setup.

Blurred or fuzzy print is usually caused by a problem in the main drive gear assembly or in the image transfer unit (ITU). Check the main drive gear assembly and ITU for correct operation.

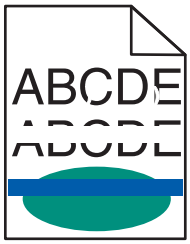
Blurred print can also be caused by incorrect feeding from one of the input paper sources, media trays, or duplex paper path.

Check the high-voltage spring contacts to ensure they are not bent, corroded, or damaged. Replace the high-voltage power supply as necessary. See **"High-voltage power supply (HVPS) with spring assembly removal" on page 4-40**.

Print quality—half-color page

A photoconductor unit is not properly seated. Reset the specific photoconductor unit.

Print quality—horizontal banding



Print the Print Defect Guide:

1. In the Ready mode, touch .
2. Navigate to **Help > Print Defects Guide**.

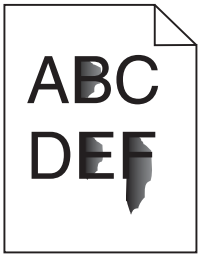
Step	Questions / actions	Yes	No
1	Measure the distance between repeating bands. **Is the distance between bands either 35 or 94 mm?**	Replace the photoconductor unit. Remove the imaging unit and remove the original developer units, and then put them back into the new photoconductor unit, and reinstall the imaging unit. See **"Developer unit removal" on page 4-47**.	Go to step 2.
2	**Does the distance measure 94 or 108 mm?**	Replace the fuser. See **"Fuser assembly removal" on page 4-32**.	Go to step 3.
3	**Does the distance measure 38, 55, or 79 mm?**	Replace the ITU. See **"Image transfer unit (ITU) removal" on page 4-43**.	Go to step 4.

Step	Questions / actions	Yes	No
4	**Does the distance measure 44 or 46 mm?**	Replace the developers that match the missing color (black, cyan, magenta, or yellow). See **"Developer unit removal" on page 4-47**.	Check the various rollers in the printer for debris.

Print quality—horizontal line

Either the photoconductor unit or one of the developer units that make up the imaging unit is defective. Remove and inspect the imaging unit. Replace the damaged part of the imaging unit. See **"Developer unit removal" on page 4-47**.

Print quality—insufficient fusing



Step	Questions / actions	Yes	No
1	Is the printer setup to use the correct media?	Go to step 2.	Change the settings to indicate the correct media.
2	Check the fuser connections on the left and right side of the printer. Are the cables and connection correct?	Go to step 3.	Properly reconnect or replace the cables.
3	Is the fuser properly installed?	Go to step 4.	Install the fuser properly.
4	Replace the fuser. See **"Fuser assembly removal" on page 4-32**. Does this fix the problem?	Problem resolved.	Replace the LVPS. see **"Low-voltage power supply (LVPS) assembly removal" on page 4-48**.

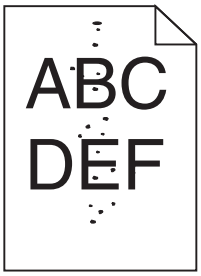
Print quality—missing image at edge

Remove and reseat the following:

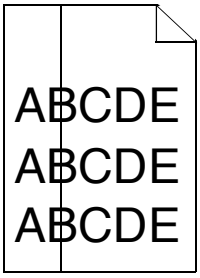
- Toner cartridge
- Imaging unit
- Developer units

Print quality—mottle (2–5mm speckles)

Keep running prints through, and the problem normally clears up. If the problem persists, replace the developer cartridge.



Print quality—narrow vertical line



Step	Questions / actions	Yes	No
1	Replace the photoconductor unit. See **“Developer unit removal” on page 4-47**.	Problem solved.	Replace the developer unit. See **“Developer unit removal” on page 4-47**.

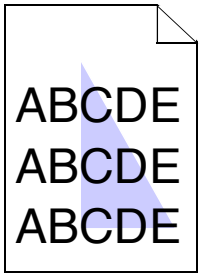
Print quality—random marks

Service tip: The primary cause of random marks is due to loose material moving around inside the printer and attaching to the photoconductor unit, developer roll, or transfer belt.

Step	Questions / actions	Yes	No
1	**Is there any loose or foreign material on the imaging unit?**	Inspect the imaging unit by looking at the individual developers and photoconductors. Clean or replace the faulty unit. See **“Developer unit removal” on page 4-47**.	Go to step 2.
2	**Is there any loose or foreign material on the developer roll?**	Replace the developer unit.	Go to step 3.
3	**Is there any loose or foreign material on the transfer belt?**	Replace the image transfer unit. See **“Image transfer unit (ITU) removal” on page 4-43**.	Contact your next level of support.

Print quality—residual image

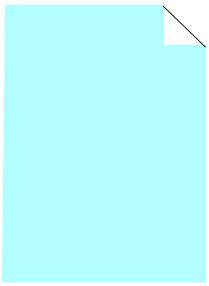
Service tip: Install a new print cartridge, if available, before doing this service check. Residual image can be caused by the photoconductor, cleaning blade, and other parts inside the print cartridge.



Step	Questions / actions	Yes	No
1	Check the condition of the imaging unit using the customer menus (administrative menus): 1. In the Ready prompt, touch . 2. Navigate to **Supplies Menu > Imaging Kit**. **Does the display indicate** OK**?**	Go to step 2.	Replace the imaging unit or the photoconductor unit. See **"Developer unit removal" on page 4-47**.
2	Measure the distance from the original image to the same point on the residual image. **Is the distance 43.9 mm?**	Replace the developer corresponding to the color of the image. See **"Developer unit removal" on page 4-47**.	Replace the imaging unit or the photoconductor unit. See **"Developer unit removal" on page 4-47**.
3	**Is the distance between the original image and the residual image 94.2 mm?**	Replace the photoconductor. See **"Developer unit removal" on page 4-47**.	
4	Run the Menu Setting Page twice to clear any debris. To print a menu settings page: 1. In the Ready prompt, touch . 2. Navigate to **Reports > Menu Settings Page**. Is there still any toner contamination on the fuser assembly?	Replace the fuser. See **"Fuser assembly removal" on page 4-32**.	Contact your next level of support.

Print quality—solid color page

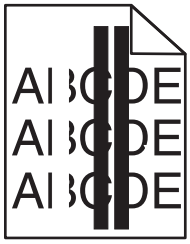
Service tip: A solid color page is generally caused by a problem in the high-voltage controller or an incorrect high voltage in the printing process resulting in toner development on the entire photoconductor drum.



Step	Questions / actions	Yes	No
1	Replace the photoconductor unit (part of the imaging unit). Remove the imaging unit and remove the developers. Place the original developers in the new photoconductor, and then replace the imaging unit. See **"Developer unit removal" on page 4-47**. **Does this fix the problem?**	Problem resolved.	Go to step 2.
2	A faulty printhead can cause the problem. To test the printhead for solid colors, place a narrow strip of paper over the gap between the developers. Make sure the paper stays in place when you replace the imaging unit. This will block the laser from discharging the photoconductors. Print a Quality Test Page. **Does the page have a white vertical band?**	Replace the printhead. See **"Printhead removal" on page 4-61**.	Go to step 3.
3	Check the high-voltage contact from the HVPS to the photoconductor charge roll. Ensure the contact springs are properly mounted and that the charge roll contact spring is making good contact with the HPVS spring that runs through the left printer frame. See **"Toner cartridge contacts removal" on page 4-64** to view the proper mounting and for removal procedures. **Are the spring(s) defective?**	Replace the transfer contact assembly. See **"Toner cartridge contacts removal" on page 4-64**.	Go to step 4.
4	Turn the printer off, and check the continuity of the HVPS cable. **Is there continuity?**	Go to step 5.	Replace the cable assembly.
5	Replace the HVPS. See **"High-voltage power supply (HVPS) with spring assembly removal" on page 4-40**. **Does this solve the problem?**	Problem resolved.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Print quality—vertical banding

Replace the developer cartridge.



Printhead service check

This service check includes the following errors:

Error codes	Color
106.xx	Yellow
107.xx	Cyan
108.xx	Magenta
109.xx	Black

Step	Questions / actions	Yes	No
1	Turn the printer off, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Check the cable at JMIRR1 for proper connection to the RIP board, the printhead cable for pinch points, and the cable or connector for any other damage. **Is the cable damaged?**	Replace the printhead. See **"Printhead removal" on page 4-61**.	Go to step 2.
2	Turn the printer on, and verify the following values at JMIRR1: **JMIRR1** **Pin** / **Voltage** 1 / 5 V dc 2 / 3.3 V dc 3 / 5 V dc 4 / Ground 5 / 24 V dc **Are the values approximately correct?**	Replace the printhead. See **"Printhead removal" on page 4-61**.	Replace the RIP board See **"RIP board removal" on page 4-19**.

Toner meter cycle (TMC) card service check

Step	Questions / actions	Yes	No
1	Perform the Base Sensor Test: 1. Enter the Diagnostics Menu (Turn off the printer, press and hold **3** and **6,** turn on the printer, and release the buttons when the progress bar appears). 2. Navigate to **Base Sensor Test**. 3. Select the sensor to test. 4. Open the toner door, remove the corresponding toner cartridge. 5. Note whether the operator panel shows a change in state. **Note**: If the reflective disk is not showing on the cartridge, rotate the gear clockwise to expose the reflective surface. For additional information about the Base Sensor Test, see **"BASE SENSOR TEST" on page 3-20**. **Does the operator panel display a change of state?**	Replace the toner cartridge.	Replace the toner meter cycle (TMC) card. See **"Toner meter cycle (TMC) card removal" on page 4-66**.

Toner sensors (Y, C, M, K) on TMC card service check

Step	Questions / actions	Yes	No
1	Remove the toner cartridge, and inspect the lenses on the toner meter cycle (TMC) card. **Are the lenses blocked, damaged, or dirty?**	Repair or replace the TMC card. See **"Toner meter cycle (TMC) card removal" on page 4-66**.	Go to step 2.
2	Turn off the printer, and remove the rear shield. See **"Rear shield removal" on page 4-7**. Disconnect the cable at the JSP1 connector on the RIP board. Turn the printer on, and measure the voltages below: **JSP1** **Pin** / **Voltage** 1 Ground 2 +3.3 V dc 3 +3.3 V dc 4 +3.3 V dc 5 +3.3 V dc 6 +0.0 V dc **Are any of the voltage values incorrect?**	Replace the RIP board. See **"RIP board removal" on page 4-19**.	Replace the TMC card. See **"Toner meter cycle (TMC) card removal" on page 4-66**.

Transfer roll service check

Step	Questions / actions	Yes	No
1	Remove the ITU. See **"Image transfer unit (ITU) removal" on page 4-43**. Check the contacts between the HVPS and the ITU. Clean the contacts and recheck. **Does the error reoccur?**	Replace the ITU. See **"Image transfer unit (ITU) removal" on page 4-43**. Go to step 2.	Problem resolved.
2	**Does the new ITU fix the problem?**	Problem resolved.	Go to step 3.
3	Turn the printer off, and remove the rear shield. See**"Rear shield removal" on page 4-7**. Turn the printer on, and check the cable at JHVPS1 connector on the RIP board without disconnecting it. Verify the following voltage values: **JHVPS1** **Pin** / **Voltage** 7 / +3.3 V dc 10 / +3.3 V dc 11 / +3.3 V dc 13 / +24 V dc 14 / Ground 16 / Ground **Are the values approximately correct?**	Replace the HVPS**"High-voltage power supply (HVPS) with spring assembly removal" on page 4-40**.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Tray (x) sensor service check

Step	Questions / actions	Yes	No
1	When the printer is in Ready state, pull the standard tray out. The display should indicate `Tray (x) Missing`. Insert the tray. **Does the message remain on the display?**	Go to step 2.	Go to step 4.
2	Check the vertical well at the right rear of the tray for damage. **Is the tray damaged?**	Replace the tray.	Go to step 3.
3	Check for a dislodged tray present sensor. **Is the sensor dislodged?**	Replace the tray 1 sensor. If the 650-sheet tray is affected replace the 650-sheet drawer assembly. If the 550-sheet assembly is affected, replace the entire 550-sheet assembly.	Contact the next level of support.
4	**Does the message `Tray (x) Missing` fail to appear when the tray is pulled out?**	Go to step 5.	Problem resolved.

<table>
<tr><th>Step</th><th>Questions / actions</th><th>Yes</th><th>No</th></tr>
<tr><td>5</td><td>Turn off the printer, and remove the rear shield. “Rear shield removal” on page 4-7. Disconnect the cable at JTRAY1 connector for Tray 1 or JOPT1 for Tray 2 and 3 on the RIP board. Turn the printer on, and measure the voltages below:
<table>
<tr><th colspan="2">JTRAY1 for Tray 1</th></tr>
<tr><th>Pin</th><th>Voltage</th></tr>
<tr><td>1</td><td>+5 V dc</td></tr>
<tr><td>2</td><td>+5 V dc</td></tr>
<tr><td>3</td><td>Ground</td></tr>
</table>
Check these voltages for Tray 2 and 3
<table>
<tr><th colspan="2">JOPT1 for Tray 2 or 3</th></tr>
<tr><th>Pin</th><th>Voltage</th></tr>
<tr><td>2</td><td>Ground</td></tr>
<tr><td>3</td><td>Ground</td></tr>
<tr><td>5</td><td>+24V</td></tr>
<tr><td>6</td><td>Ground</td></tr>
<tr><td>7</td><td>+5V</td></tr>
<tr><td>9</td><td>Ground</td></tr>
<tr><td>10</td><td>Ground</td></tr>
</table>
Are the voltage values approximately correct?</td><td>Problem resolved.</td><td>Replace the RIP board. See “RIP board removal” on page 4-19.</td></tr>
</table>

Option trays 2 and 3 service check

Step	Questions / actions	Yes	No
1	**Are two option trays being used?**	Go to step 2.	Go to step 4.
2	**If two option trays are being used, is the 550 sheet tray on the bottom?**	Go to step 4.	Go to step 3.
3	Switch the order of the trays so the 500-sheet tray is on the bottom, and print a page from both trays. **Did the pages print from both trays?**	Problem resolved	Go to step 4.
4	Inspect the paperfeed tires on the tray that fails to pick. **Do they appear worn.**	Go to step 5.	Go to step 6.
5	Replace the paperfeed tires on the faulty tray and print a page with media from the affected tray. **Did the page print?**	Problem resolved	Go to step 6.

<table>
<tr><th>Step</th><th>Questions / actions</th><th>Yes</th><th>No</th></tr>
<tr><td>6</td><td>Check the option cable connected to JOPT1 for continuity.

Is there continuity?</td><td>Go to step 8.</td><td>Go to step 7.</td></tr>
<tr><td>7</td><td>Replace the cable and print from both option trays.

Did the pages print from both trays?</td><td>Problem resolved.</td><td>Go to step 8.</td></tr>
<tr><td>8</td><td>Print a menu settings page.

Are all the attached option trays listed on the first page of the menu settings pages?
Note: If two option trays are used, the 650 sheet will appear as tray 2, and the 550 sheet tray will appear as tray 3.</td><td>Go to step 9.</td><td>If the 550-sheet option failed to appear, got step 9.
If the 650-sheet tray failed to appear, go to step 10.</td></tr>
<tr><td>9</td><td>Remove the 650 sheet tray from the printer, attach the 550 sheet tray directly to the printer, and print a page from the 550 sheet tray.

Did the page print?</td><td>Go to step 11.</td><td>Replace the 550-sheet tray.</td></tr>
<tr><td>10</td><td>With only the 650 sheet tray attached to the printer, print a page from the 650 sheet tray.

Did the page print?</td><td>Go to step 11.</td><td>Replace the 650-sheet tray.</td></tr>
<tr><td>11</td><td>Turn off the printer, and remove the rear shield. “Rear shield removal” on page 4-7. Disconnect the cable at JOPT1 on the RIP board. Turn the printer on, and measure the voltages below.

<table><tr><th colspan="2">JOPT1</th></tr><tr><th>Pin</th><th>Voltage</th></tr><tr><td>2</td><td>Ground</td></tr><tr><td>3</td><td>Ground</td></tr><tr><td>5</td><td>+24 V</td></tr><tr><td>6</td><td>Ground</td></tr><tr><td>7</td><td>+5 V</td></tr><tr><td>9</td><td>Ground</td></tr><tr><td>10</td><td>Ground</td></tr></table>
Are the voltages correct?</td><td>Consult your next level support.</td><td>Replace the RIP board. See “RIP board removal” on page 4-19.</td></tr>
</table>

Scanner / Copy / Fax service checks

840.xx error service check

Step	Questions / actions	Yes	No
1	POR the device into Configuration mode. Go to **Disable Scanner** and select **Enabled**. See **"Disable Scanner" on page 3-39**. POR the device into operating mode. Try running a copy from the ADF and flatbed. **Did the 840.xx error reoccur?**	Go to step 2.	Stop. Problem resolved.
2	Re-enter Configuration mode, navigate to the **Disable Scanner**. **Does the screen display** `ADF Disabled` **or** `Auto Disabled`**?**	Go to step 3.	Go to step 8.
3	Check the ADF cable connections on the ADF relay card and the RIP board. Also inspect JFBM1, JHS1 and JCCD1 on the RIP board. Are the connections properly connected?	Go to step 5.	Go to step 4.
4	Properly connect the connections on the ADF relay card and RIP board. POR the device into Configuration mode. Go to **Disable Scanner** and select **Enabled**. See **"Disable Scanner" on page 3-39**. POR the device into operating mode. Try running a copy from the ADF and flatbed. **Did the 840.xx error reoccur?**	Go to step 5.	Stop. Problem solved.
5	Check the continuity on the ADF cable. **Is there continuity?**	Go to step 7.	Go to step 6.
6	Replace the ADF cable. POR the device into Configuration mode. Go to **Disable Scanner** and select **Enabled**. See **"Disable Scanner" on page 3-39**. POR the device into operating mode. Try running a copy from the ADF and flatbed. **Did the 840.xx error reoccur?**	Go to step 7.	Stop. Problem resolved.
7	Replace the ADF unit. See **"Duplex ADF removal" on page 4-87**. POR the device into Configuration mode. Go to **Disable Scanner** and select **Enabled.** See **"Disable Scanner" on page 3-39**. POR the device into operating mode. Run a copy from the ADF. **Did the 840.xx error reoccur?**	Go to step 8.	Stop. Problem resolved.

Step	Questions / actions	Yes	No
8	Inspect JFBM1, JHS1 and JCCD1 on the RIP board. **Are they properly connected?**	Go to step 10.	Go to step 9.
9	Properly connect all the connections. **Did the 840.xx error reoccur?**	Stop Problem solved.	Go to step 10.
10	Replace the flatbed unit. See **"Flatbed removal" on page 4-75**. POR the device into Configuration mode. Go to **Disable Scanner** and select **Enabled**. See **"Disable Scanner" on page 3-39**. POR the device into operating mode. Run a copy from the flatbed. **Did the 840.xx error reoccur?**	Go to step 11.	Stop. Problem resolved.
11	Replace the RIP board. See **"RIP board removal" on page 4-19**. **Did this fix the problem?**	Problem resolved.	Contact your next level of support.

Black or blank page copy service check

Step	Questions / actions	Yes	No
1	Print a menu page, or a page from the host. **Is the page black?**	See **"Print quality—solid color page" on page 2-53**.	Go to step 2.
2	**Is the copy an ADF scan?**	Go to step 3.	Go to step 4.
3	Run a flatbed copy. **Is it blank or black?**	Go to step 5	Go to step 4
4	**Does the sheet feed into the ADF?**		Go to step 5.
5	**Is the CCD ribbon cable properly connected to JCCD1 on the RIP board?**	Go to step 6.	Properly connect the ribbon cable to JCCD1.
6	Check for +14 V dc on pins 33 and 34 on connector JCCD1. Check for +5 V dc on pins 31 and 32. **Are the voltages present?**	Replace the flatbed unit. See **"Flatbed removal" on page 4-75**.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

CCD service check

Step	Questions / actions	Yes	No
1	Restart the device, and retry the scan / copy job. Repeat this step with a few copy jobs. **Does the error reoccur?**	Go to step 2.	No issue.

Step	Questions / actions	Yes	No
2	**Is the CCD ribbon cable properly connected to JCCD1 on the RIP board?**	Go to step 3.	Properly connect the ribbon cable to JCCD1.
3	Replace the flatbed unit. See **"Flatbed removal" on page 4-75**. **Did this resolve the issue?**	Problem resolved.	Replace the RIP board. See **"RIP board removal" on page 4-19**.

Flatbed motor service check

Step	Questions / actions	Yes	No
1	Ensure that the flatbed motor cable (JFB1) is connected. **Is the cable connected?**	Go to step 2.	Properly connect the cable.
2	Check pin 1 in JFBM1 for voltage. The voltage is only present when a flatbed copy job is running. The voltage should measure +24 V ac. **Is voltage present?**	Replace the flatbed unit. See **"Flatbed removal" on page 4-75**.	Replace the RIP board. Go to **"RIP board removal" on page 4-19**.

Flatbed home position service check

Step	Questions / actions	Yes	No
1	POR the printer. **Does the CCD move and return to the home position?**	Problem solved.	Go to step 2.
2	Perform the home position sensor test. Go to **"SCANNER TESTS" on page 3-26**. **Is the sensor working properly?**	Go to step 3.	Go to step 5.
3	Check JFBM1 on the controller for proper connection. **Is it connected properly?**	Go to step 4.	Properly connect the cable.
4	Check pin 1 in JFBM1 for voltage. The voltage is only present when a flatbed copy job is running. The voltage should measure +24 V ac. **Is voltage present?**	Go to step 5.	Replace the RIP board. Go to **"RIP board removal" on page 4-19**.
5	Ensure that the home position cable (JHS1) is connected. **Is the cable connected?**	Go to step 6.	Properly connect the cable.

Step	Questions / actions	Yes	No
6	Check pin 1 in JHS1 for voltage. The voltage should measure +5 V dc. pin 2 should be GND. **Is voltage present and is it correct?**	Replace the flatbed unit. See **“Flatbed removal” on page 4-75**.	Replace the RIP board. Go to **“RIP board removal” on page 4-19**.

ADF cover open service check

Step	Questions / actions	Yes	No
1	**Is the ADF cover properly closed?**	Go to step 3.	Go to step 2.
2	Close the ADF cover. **Does the problem go away?**	Issue resolved	Go to step 3.
3	Perform the ADF cover open sensor test. Go to **“SCANNER TESTS” on page 3-26**. **Does the sensor work properly.**	Go to step 4	Go to step 8.
4	On the bottom of the ADF cover, inspect the ADF cover closed sensor actuator. **Does it move freely?**	Go to step 6.	Go to step 5.
5	Fix the actuator so it moves freely. **Did this fix the problem?**	Problem resolved.	Go to step 6.
6	Remove the ADF rear cover and inspect the ADF cover closed sensor for dirt and debris. **Are there dirt and debris present?**	Go to step 7.	Go to step 8.
7	Clean the dirt and debris from the sensor. **Did this fix the problem?**	Problem resolved.	Go to step 8.
8	Inspect the connections on the ADF relay card in the ADF. **Are they properly connected?**	Go to step 9.	Secure all the connections.
9	Check the ADF cable for continuity. **Is there continuity?**	Go to step 10.	Replace the ADF cable. See **“ADF cable removal” on page 4-89**.
10	Check for signals or voltages from JADF1 on the RIP board. Pins 11 and 12 should measure +24VDC. Pin 5 should measure +14VDC. **Are there signals or voltages present?**	Replace the ADF. See **“Duplex ADF removal” on page 4-87**.	Replace the RIP board. See **“RIP board removal” on page 4-19**.

ADF streak service check

Step	Questions / actions	Yes	No
1	**Do streaks appear on the middle of scans when using the ADF?**	Clean the ADF glass on the flatbed using a lint-free cloth. Also, clean the separator roll and pad with a damp cloth.	No issue to fix.

ADF paper jam service check

Note: This service check should be used if the paper feeds and jams in the ADF. If the paper is not feeding into the ADF, see **"ADF feed errors service check" on page 2-64**.

Step	Questions / actions	Yes	No
1	If the ADF is multi-feeding, check for dirt on the ADF separator pad and ADF separator rollers. **Is there dirt present?**	Clean them with a lint free cloth and isopropyl alcohol.	Replace the separator pad and ADF pick roll.
2	If the paper is skewing when it is fed into the ADF, check the paper guide width. **Is it set correctly?**	Go to step 3.	Set the paper guides so they contact the edges of the paper.
3	If paper is skewing when fed or jamming check to see if the top cover is open or ajar. **Is the ADF top cover open or ajar?**	Properly close the top cover.	If the paper is jamming in the ADF, go to step 6.
4	**Is paper failing to feed into the ADF?**	Go to step 5.	There is no issue.
5	Perform the ADF paper present, scan 1st and scan 2nd sensor tests. **"SCANNER TESTS" on page 3-26**. **Are the sensors working properly?**	Go to step 6.	Go to step 9.
6	Check the leading edge of the paper to ensure the paper is not curled or bent in a way that would keep it from contacting the paper present sensor actuator. **Is the paper damaged?**	Bad media.	Go to step 7.
7	**Is there dirt in the sensors, or is the paper present actuator stuck?**	Clean the sensors, or remove debris from the actuators.	Go to step 8.
8	**Are the sensor actuators on the ADF mechanism cover damaged?**	Replace the ADF.	Go to step 9.
9	**Is the ADF connector properly connected to JADF1 on the RIP board?**	Go to step 10.	Properly connect the cable to the RIP board.

Step	Questions / actions	Yes	No
10	Inspect the connections on the ADF relay card in the ADF. **Are all the connections properly connected?**	Go to step 11.	Secure all the connections.
11	Check the ADF cable for continuity. **Is there continuity?**	Go to step 11.	Replace the ADF cable.
12	Check for signals or voltages from JADF1 on the RIP board. Pins 11 and 12 should measure +24 V dc. Pin 5 should measure +14 V dc. **Are there signals or voltages present?**	Replace the ADF unit. See **"Duplex ADF removal" on page 4-87**.	Replace the RIP board. Go to **"RIP board removal" on page 4-19**.

ADF feed errors service check

Step	Questions / actions	Yes	No
1	If the ADF is multi-feeding, check for dirt on the ADF separator pad and ADF separator rollers. **Is there dirt present?**	Clean them with a lint free cloth and isopropyl alcohol.	Replace the separator pad and ADF pick roll.
2	If the paper is skewing when it is fed into the ADF, check the paper guide width. **Is it set correctly?**	Go to step 3.	Set the paper guides so they make contact with the edges of the paper.
3	If paper is skewing when fed or jamming check to see if the top cover is open or ajar. **Is the ADF top cover open or ajar?**	Properly close the top cover.	If the paper is jamming in the ADF, see **"ADF paper jam service check" on page 2-63**.
4	**Is paper failing to feed into the ADF?**	Go to step 5.	There is no issue.
5	**Is the leading edge of the paper wrinkled or torn?**	Use different media.	Go to step 6.
6	Perform the ADF paper present sensor test. Go to **"SCANNER TESTS" on page 3-26**. **Is the sensor working properly?**	Go to step 7.	Properly connect all the connections in the ADF relay card.
7	Check the actuators to see if they are jammed, or damaged. **Are they jammed or damaged?**	Replace the ADF. See **"Duplex ADF removal" on page 4-87**.	Go to step 8.
8	Properly connect all the connections in the ADF relay card and RIP board. **Did this fix the problem?**	Problem resolved.	Go to step 9.

9	Check the ADF cable for continuity. **Is there continuity?**	Go to step 6.	Replace the ADF cable. See **"ADF cable removal" on page 4-89**.
10	Replace the ADF. Go to **"Duplex ADF removal" on page 4-87**. **Does this fix the problem?**	Problem resolved.	Replace the RIP board. Go to **"RIP board removal" on page 4-19**.

Previous
Next
Go Back

ADF duplex service check

Step	Questions / actions	Yes	No
1	Perform sensor 1, and sensor 2 sensor tests. Go to **"SCANNER TESTS" on page 3-26**. **Are the sensors working properly?**	Go to step 2.	Go to step 3.
2	Check the ADF sensor actuators to see if they are dirty or jamming. **Are the actuators working properly?**	Go to step 3.	Clean the actuators. If any actuators on the ADF are broken, replace the ADF unit. See **"Duplex ADF removal" on page 4-87**.
3	Check all the connections on the ADF relay card. **Are they properly connected?**	Go to step 4.	Properly connect all the connections.
4	Check the ADF cable to ensure it is properly connected to CN 15 on the ADF relay card, and main RIP board at JADF1. **Is the ADF cable properly connected?**	Go to step 5.	Properly connect the ADF cable to its connections.
5	Check the ADF cable for continuity. Make sure pin 22 has continuity. **Is there continuity on pin 22?**	Go to step 6.	Replace the ADF cable. Go to **"ADF cable removal" on page 4-89**.
6	Replace the ADF. Go to **"Duplex ADF removal" on page 4-87**. **Does this fix the problem?**	Problem resolved	Replace the RIP board. Go to **"RIP board removal" on page 4-19**.

Modem/fax card service check

Step	Questions / actions	Yes	No
1	**Is the phone line properly connected to the modem card and the wall jack?**	Go to step 2.	Go to step 3.
2	Properly connect the phone line to the modem card and wall jack. **Did this fix the problem?**	Problem resolved.	Go to step 3.
3	Test the phone line's ability to send and receive calls. **Did the phone line work properly?**	Go to step 5.	Go to step 4.
4	Use the MFP on a properly functioning phone jack. **Did this fix the problem?**	Problem resolved.	Go to step 5.
5	**Is the modem card ribbon cable properly connected to the RIP board at JMOD2 and the modem card?**	Go to step 7.	Go to step 6.
6	Properly connect the modem card cable to the modem card and RIP board. **Did this fix the problem?**	Problem resolved.	Go to step 7.
7	Check the modem card ribbon cable for continuity. **Is there continuity?**	Go to step 8.	Replace the modem card cable.
8	Check the voltages from connector JMOD2 on the RIP board. **JMOD2** **Pin** / **Voltage** 4 / + 3.3 V dc 5 / + 3.3 V dc 7 / + 5 V dc 9 / Ground 11 / Ground 13 / Ground 15 / Ground 17 / Ground 19 / Ground **Are the voltages approximately correct?**	Replace the fax card. See **"Fax card removal" on page 4-31**.	Replace the RIP board. Go to **"RIP board removal" on page 4-19**.

Fax transmission service check

Note: Before performing this service check, verify that the correct country code for the MFP is selected. This setting must match the country in which the MFP is used to transmit and receive faxes. If the setting is wrong, the modem settings can be changed in the Fax/SE menu. See step 14. These settings should only be performed with guidance from your second-level support.

Step	Questions / actions	Yes	No
1	Is the phone line properly connected to the modem card and the wall jack?	Go to step 2.	Go to step 3.
2	Properly connect the phone line to the modem card and wall jack. **Did this fix the problem?**	Problem resolved.	Go to step 3.
3	Test the phone line's ability to send and receive calls. **Does the phone line work properly?**	Go to step 5.	Go to step 4.
4	Use the MFP on a properly functioning phone jack. **Does this fix the problem?**	Problem resolved.	Go to step 5.
5	**Is the phone line being used by the MFP an analog line?**	Go to step 8.	Go to step 6.
6	**Is the line being used a VOIP line?**	Go to step 7.	Go to step 8.
7	Have the system administrator verify that the VOIP server is configured to receive faxes. **Is the server properly configured?**	Go to step 8.	Stop here. The issue is VOIP related. The VOIP provider needs to change the server configuration.
8	**Is the MFP on a PABX?**	Go to step 9.	Go to step 10.
9	Enable **Behind a PABX** under fax settings in the Administrative menu. **Did this fix the problem?**	Problem resolved.	Disable **Behind a PABX,** and go to step 10.
10	**Is a dial prefix needed to get an outside line?**	Go to step 11.	Go to step 12.
11	Try sending a fax using a dial prefix. **Does the fax transmit?**	Problem resolved.	Go to step 12.
12	**Is the fax failing to send to one specific destination?**	Go to step 13.	Go to step 14.
13	Check the device that cannot receive a fax. **Can it send a fax?**	Go to step 14.	Stop here. The issue is with the other device.

Step	Questions / actions	Yes	No
14	Press **411 to enter the Fax/SE Menu. Select “Print Logs”. Print the T.30 transmission log. Check the error being reported with the fax error code table. See **“” on page 2-27**. Perform the suggested resolution for the error. **Did this fix the problem?**	Problem resolved.	Go to step 15.
15	Adjust the “Transmit Level” setting in the SE menu. press **411 to enter the SE menu, enter Modem settings, and select “Transmit Level”. Test by adjusting the transmitted signal strength by decreasing/increasing the ‘Transmit Level’ setting in steps of 1db. For example, if default value is -11 db, changing it to-12 db will decrease the signal strength by 1 db, and changing it to -10 db will increase the signal strength by 1db. Recommended adjustment range is ±5 db (in 1 db increments) from the default value. **Did this fix the problem?**	Problem resolved.	Go to your second-level of support. See **“Escalating a fax issue to next level support” on page 2-70**.

Fax reception service check

Step	Questions / actions	Yes	No
1	**Is the phone line properly connected to the modem card and the wall jack?**	Go to step 2.	Go to step 3.
2	Properly connect the phone line to the modem card and wall jack. **Did this fix the problem?**	Problem resolved.	Go to step 3.
3	Check for a dial tone. **Is there a dial tone?**	Go to step 4.	Go to step 6.
4	Use a telephone to test the phone line’s ability to send and receive calls. **Did the phone line work properly?**	Go to 7.	Go to step 5.
5	Use a telephone handset to verify the phone line is free of static or external noise. **Is the phone line noise-free?**	Go to step 7.	Go to step 6.
6	Use the MFP on a properly functioning phone jack. **Did this fix the problem?**	Problem resolved.	Go to step 7.
7	In <diags / config menu>, verify that the Enable Fax Receive setting is on. **Is the setting set to on?**	Go to step 9.	Go to step 8.

Step	Questions / actions	Yes	No
8	Set “Enable Fax Receive” to On. **Did this fix the problem?**	Problem resolved.	Go to step 9.
9	**Is Distinctive Ring enabled?**	Go to step 11.	Go to step 10.
10	Turn on Distinctive ring. **Did this fix the problem?**	Problem resolved.	Go to step 11.
11	**Is the phone line analog?**	Go to step 13.	Go to step 12.
12	**Is the VOIP server configured to support fax?**	Go to step13.	Stop here. This is an issue with the VOIP provider.
13	**Does the MFP have reception issues with only a certain remote device?**	Go to step 14.	Go to step 15.
14	Verify communications with a different remote device. **Can the other device receive faxes?**	The issue is with the other device.	Go to step 15.
15	Go to the Administrative menu. Enter the Fax settings - Analog Fax Settings submenu. Verify the Block No Name Fax user setting. **Is it enabled?**	Go to step 16.	Go to step 17.
16	Disable Block No Name Fax user setting. **Did this fix the issue?**	Problem resolved.	Go to step 17.
17	Go to the Administrator menu. Enter the Fax settings - Analog Fax Settings submenu. Verify the remote device number is not in the Banned Fax List user setting. **Is the remote device number in the banned fax list?**	Go to step 18.	Go to step 19.
18	Remove the remote number from the banned fax list. **Did this fix the problem?**	Problem resolved.	Go to step 19.

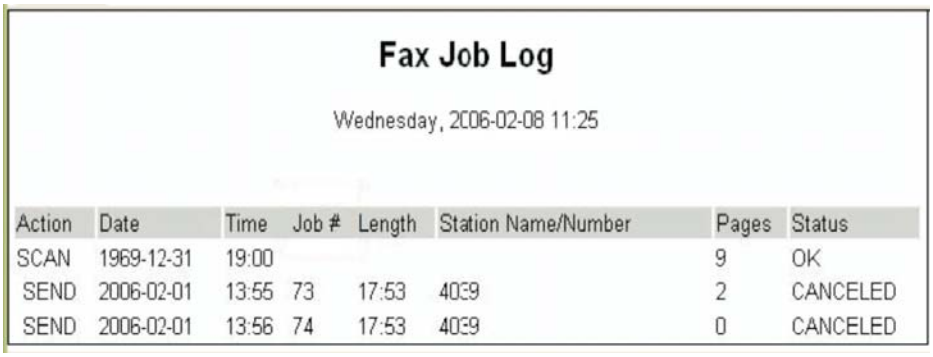
Step	Questions / actions	Yes	No
19	Adjust the “Receive Threshold” setting in the SE menu. press **411 to enter the SE menu, enter Modem settings, and select “Receive Threshold”. Test by adjusting the received signal level by decreasing/increasing the”Receive Threshold” setting in steps of 2 db. For example, if default value is -43 db, changing it to -45 db will decrease the received signal level by 2 db, and changing it to -41 db will increase the received signal level by 2 db. Recommended adjustment range is between -33 db and -48 db (in 2db steps). **Did this fix the problem?**	Problem resolved.	Go to step 20.
20	Press **411 to enter the SE Menu. Select “Print Logs”. Print the T.30 transmission/ job log. Check the error code being reported. See **“” on page 2-27**. Perform the suggested resolution for the error. **Did this fix the problem?**	Problem resolved.	Contact your next level support. See **“Escalating a fax issue to next level support” on page 2-70**.

Escalating a fax issue to next level support

Before contacting your next level support, go to the SE menu on the device and generate a Fax error file. This file contains machine settings information and debug information that will help second-level support determine the cause of a failure.

To generate the fax error file, perform the following steps:

1. In a Web browser, type http://MFP ip address/se.
2. The MFP’s SE menu page will display. Click the “Dump Job History” link. The following displays:



Fax Job Log

Wednesday, 2006-02-08 11:25

Action	Date	Time	Job #	Length	Station Name/Number	Pages	Status
SCAN	1969-12-31	19:00				9	OK
SEND	2006-02-01	13:55	73	17:53	4039	2	CANCELED
SEND	2006-02-01	13:56	74	17:53	4039	0	CANCELED

3. Write down the type of connection, the type of error, and the job in which the error occurred.
4. In the Web browser address bar, type http://MFP ipaddress/se.
5. Click **Report a Fax Problem** (A). The fax check list displays.

6. Fill in the requested information. This is where you will type in the information you retrieved in step 3. Second-level support can assist you if you have questions about the information requested on the page.

Note: The fields requesting the code levels, model number, type of problem are auto-filled. If the information is not in the fields, it can be retrieved from the SE menu. The SE menu can be accessed by pressing **411 on the keypad or typing http://MFP ipaddress/se in a Web browser.

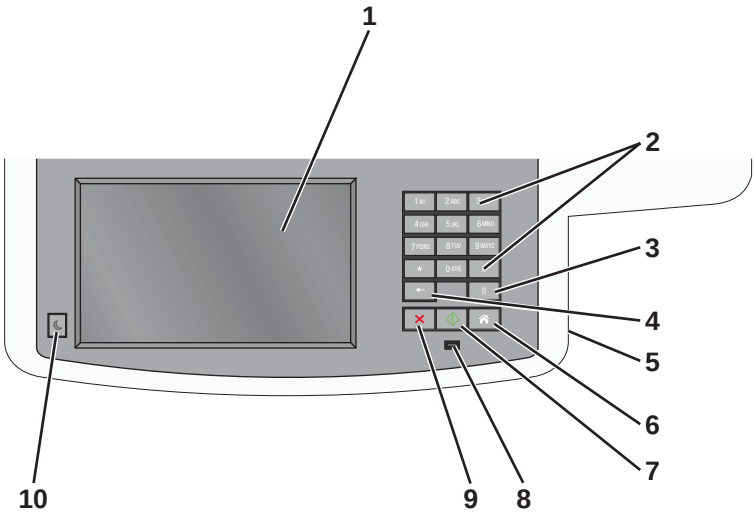
7. After all the requested information is entered into the Fax Checklist Web page, press the **Submit** button on the bottom of the page. A dialogue asking you to save the file will appear.
   Note: The file generated by the MFP is not automatically transmitted to second-level support. It is placed on the computer desktop.
8. Enter a name for the file, and indicate where you want to save the file.
9. Press **OK**. The file appears on the desktop.
10. E-mail the file to second-level support.

3. Diagnostic aids

This chapter explains the tests and procedures to identify printer failures and verify repairs have corrected the problem.

User operator panel, menus and messages

Understanding the operator panel



Operator panel buttons

	Item	Function
1	Display	Views scanning, copying, faxing, and printing options as well as status and error messages
2	Keypad	Enters numbers, letters, or symbols on the display
3	Pause	• Press || to cause a two- or three-second dial pause in a fax number. In the Fax To field, a Pause is represented by a comma (,). • From the home screen, press || to redial a fax number. • The button functions only within the Fax menu or with fax functions. When outside of the Fax menu, fax function, or home screen, pressing || causes an error beep.
4	Back	• In the Copy menu, press ← to delete the right-most digit of the value in the Copy Count. The default value of 1 appears if the entire number is deleted by pressing ← numerous times. • In the Fax Destination List, press ← to delete the right-most digit of a number entered manually. You can also press ← to delete an entire shortcut entry. Once an entire line is deleted, another press of causes the cursor to move up one line. • In the E-mail Destination List, press ← to delete the character to the left of the cursor. If the character is in a shortcut, then the shortcut is deleted.

	Item	Function
5	USB port	Insert a flash drive to send data to the printer or to scan a file to the flash drive.
6	Home	Press to return to the home screen.
7	Submit	• Press to initiate the current job indicated on the display. • From the home screen, press to start a copy job with the default settings. • If pressed while a job is scanning, then the button has no effect.
8	Indicator light	• **Off**—The printer is off. • **Blinking green**—The printer is warming up, processing data, or printing. • **Solid green**—The printer is on, but idle. • **Blinking red**—Operator intervention is needed.
9	Stop	Press to stop all printer activity. A list of options is offered once `Stopped` appears on the display.
10	Sleep	Press to put printer into or out of Sleep Mode.

Understanding the home screen

When the printer is turned on, the display shows a basic screen, referred to as the home screen. Touch the home screen buttons and icons to initiate an action such as copying, faxing, or scanning; to open the menu screen; or to respond to messages.

Note: Your home screen, icons, and buttons may vary depending on your home screen customization settings, administrative setup, and active embedded solutions.

Icon/Button	Function
Copy	Access the Copy menus and make copies.
E-mail	Access the E-mail menus and send e-mails.
Fax	Access the Fax menus and send faxes.

Icon/Button	Function
	Access the printer menus. **Note:** These menus are available only when the printer is in the Ready state.
FTP	Access the File Transfer Protocol (FTP) menus and scan documents directly to an FTP server.
Status message bar	• Show the current printer status such as `Ready` or `Busy`. • Show printer conditions such as `Toner Low` or `Cartridge Low`. • Show intervention messages so the printer can continue processing.
Status/Supplies	• Display a warning or error message whenever the printer requires intervention to continue processing. • Access the messages screen for more information on the message, and how to clear it.
USB or USB Thumbdrive	View, select, print, scan, or e-mail photos and documents from a flash drive. **Note:** This button appears only when you return to the home screen while a memory card or flash drive is connected to the printer.
Bookmarks	Create, organize, and save a set of bookmarks (URL) into a tree view of folders and file links. **Note:** The tree view supports only bookmarks created from this function, and not from any other application.
Held Jobs	Display all current held jobs.
Other buttons that may appear on the home screen:	
Search held jobs	Search on any of the following items: • User name for held or confidential print jobs • Job names for held jobs, excluding confidential print jobs • Profile names • Bookmark container or print job names • USB container or print job names for supported file types
Release Held Fax	Access the list of held faxes. **Note:** This button appears only when there are held faxes with a scheduled hold time previously set.
Lock Device	Open a password entry screen. Enter the correct password to lock the printer control panel. **Note:** This button appears only when the printer is unlocked and password has been set.
Unlock Device	Open a password entry screen. Enter the correct password to unlock the printer control panel. **Note:** This button appears only when the printer is locked. The printer control panel buttons and shortcuts cannot be used while this appears.

Icon/Button	Function
Cancel Jobs	Open the Cancel Jobs screen. The Cancel Jobs screen shows three headings: Print, Fax, and Network. The following options are available under the Print, Fax, and Network headings: • Print job • Copy job • Fax profile • FTP • E-mail send Each heading has a list of jobs shown in a column under it which can show only three jobs per screen. If more than three jobs exist in a column, then an arrow appears enabling you to scroll through the jobs.
Change Language	Launch the Change Language pop-up window that allows you to change the primary language of the printer.

Menu map

This menu map identifies menus available to customers. The diagram shows the menus on the operator panel and items available under each menu.

Some menu items or values are displayed only if a specific option or feature is installed on your printer. Other menu items may be effective only for a particular printer language. You can select these values at any time, but they affect printer function only when you have the optional equipment, feature on your model, or the specified printer language.

Supplies Menu
- Replace Supply
- Cyan Cartridge
- Magenta Cartridge
- Yellow Cartridge
- Black Cartridge
- Imaging Kit
- Separator Roll and Pick Assembly
- Waste Toner Bottle
- Fuser

Paper Menu
- Default Source
- Paper Size/Type
- Substitute Size
- Paper Texture
- Paper Weight
- Paper Loading
- Custom Types
- Custom Names
- Custom Scan Sizes
- Universal Setup

Reports
- Menu Settings Page
- Device Statistics
- Network Setup Page
- Network [x] Setup Page
- Shortcut List
- Fax Job Log
- Fax Call Log
- Copy Shortcuts
- E-mail Shortcuts
- Fax Shortcuts
- FTP Shortcuts
- Profiles List
- Print Fonts
- Print Directory
- Asset Report

Settings
- General Settings
- Copy Settings
- Fax Settings
- E-mail Settings
- FTP Settings
- Flash Drive
- Print Settings

Network/Ports
- Active NIC
- Network
- Standard USB Menu
- SMTP Setup

Help
- Print All Guides
- Copy Guide
- E-mail Guide
- Fax Guide
- FTP Guide
- Print Defects Guide
- Information Guide
- Supplies Guide

Manage Shortcuts
- Fax Shortcuts
- E-mail Shortcuts
- FTP Shortcuts
- Copy Shortcuts
- Profile Shortcuts

Menu key combinations

There are different test menus that can be accessed during POR to identify problems with the printer.

Configuration Menu	1. Turn off the printer. 2. Press and hold **2** and **6** simultaneously. 3. Turn on the printer. 4. Release the buttons when the splash screen appears.	The Configuration Menu group contains a set of menus, settings, and operations which are infrequently required by a user. Generally, the options made available in this menu group are used to configure a printer for operation. Go to **"Configuration Menu" on page 3-32** for more information.
Diagnostics Menu	1. Turn off the printer. 2. Press and hold **3** and **6** simultaneously. 3. Turn on the printer. 4. Release the buttons when the splash screen appears.	The Diagnostics Menu group contains the settings and operations used while manufacturing and servicing the printer. Go to **"Diagnostics Menu (Diag Menu)" on page 3-6** for more information.
Invalid Engine Code Mode	1. Turn off the printer. 2. Press and hold **3**, **4**, and **6** simultaneously. 3. Turn on the printer. 4. Release the buttons when the splash screen appears.	This mode is used if the machine has invalid code and needs the correct code loaded. After entering this mode, the firmware code can be updated.

These menus do not require a POR to access them:.

Network SE Menu	1. Touch . 2. Navigate to **Networks/Ports > Standard Network > Std Network Setup**. 3. Press and hold **6**, **7**, and **9** simultaneously.	This menu contains settings for fine tuning the communication settings for the network interfaces and protocols.
Fax SE Menu	Enter ****411** while in the Home Prime screen.	This should be used only under the guidance of second-level support. See **"Fax transmission service check" on page 2-67** and**"Fax reception service check" on page 2-68**.
SE Menu	From a Web browser on a host PC, add **/se** to the printer IP address.	
Firmware update from USB	For use on machines with operator panel USB.	See **"Updating printer firmware" on page 3-54**.

Diagnostics Menu (Diag Menu)

Note: Tray 2 refers to the 650-sheet tray located in the 650-sheet duo drawer assembly.

Diagnostics Menu structure

When the Diagnostics mode is entered, each Diagnostics main menu item displays on the operator panel. When a diagnostic test is selected from the main menu, a sub menu displays, and each individual test displays in the order shown. Any options that are referred to in the menus are displayed when the option is installed.

Available tests

The tests display on the operator panel in the order shown:

REGISTRATION	
Printer	See **"Printer" on page 3-9**.
Quick Test	See **"Quick Test" on page 3-10**.
Alignment Menu	
Cyan	These tests are performed to align the color planes. See **"Alignment Menu" on page 3-11**.
Magenta	
Yellow	
Factory Scanner	See **"Factory Scanner" on page 3-13**.
Factory Manual	See **"Factory Manual" on page 3-13**.
Scanner Calibration	
Copy Quick Test	See **"Copy Quick Test" on page 3-14**.
Adjust Calibration Values	See **"Adjust Calibration Values" on page 3-14**.
Reset Flatbed Calibration Values	See **"Reset Flatbed, ADF Front, ADF Back Calibration Values" on page 3-14**.
Reset ADF Front Calibration Values	
Reset ADF Back Calibration Values	
MISC TESTS	
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REGISTRATION

Printer

Print registration makes sure the black printing is properly aligned on the page. This is one of the steps in aligning a new printhead. See **"Alignment Menu" on page 3-11**. It is also the first step in aligning the duplex registration. See **"Quick Test (duplex)" on page 3-18**.

To adjust this setting:

1. Print a Quick Test Page. See **"Quick Test" on page 3-10**.
2. Scroll up or down and select the margin setting you need to change.
3. Touch or to adjust the settings.
4. Touch **Submit** to save the settings, or touch **Back** to return to the Diagnostics Menu without saving any changes.

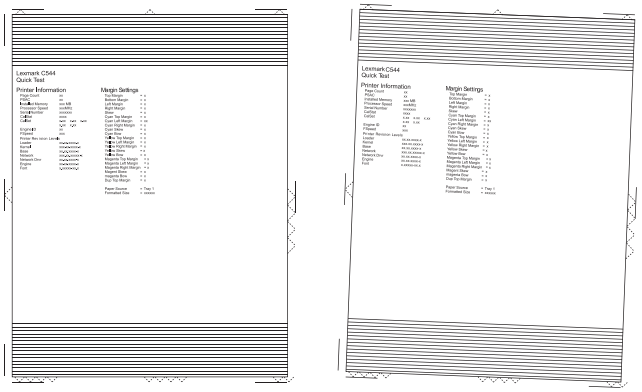
   The print registration ranges are:

Description	Value	Direction of change
Top margin	-50 to +50 Each increment corresponds to 8 scans at a 600 dpi scan rate (0.0133 inches or 0.339 mm). The default value is 0.	A positive value moves the image down the page and increases the top margin, while a negative value moves the image up and decreases the top margin. No compression or expansion occurs.
Bottom margin	-25 to +25 Each increment causes approximately 0.55 mm shift in the bottom margin. The default value is 0.	A positive value moves text down the page and narrows the bottom margin, while a negative value moves text up the page and widens the bottom margin. The image is compressed or expanded.
Left margin	-25 to +25 Each increment corresponds to 4 pixels at 600 dpi (0.00666 in. or 0.1693 mm). The default value is 0.	A positive value moves the margin to the left, while a negative value moves the image to the right. No image compression or expansion occurs.
Right margin	-50 to +50 Each increment corresponds to an approximate shift of 4 pixels at 600 dpi. The default value is 0.	A positive value moves the margin to the left, while a negative value moves the margin to the right. No image compression or expansion occurs.
Skew	-100 to +100.Each increment corresponds to 1/1200 of an inch. The default value is 0.	A positive value causes the left end of the scan line to move up the page, while a negative value causes the left end of the scan line to move down the page. The right end stays fixed. There is no compression or expansion of the image.

5. Repeat step 1 to verify the adjustments.
6. Repeat steps 1–5 to make further adjustments.

Skew

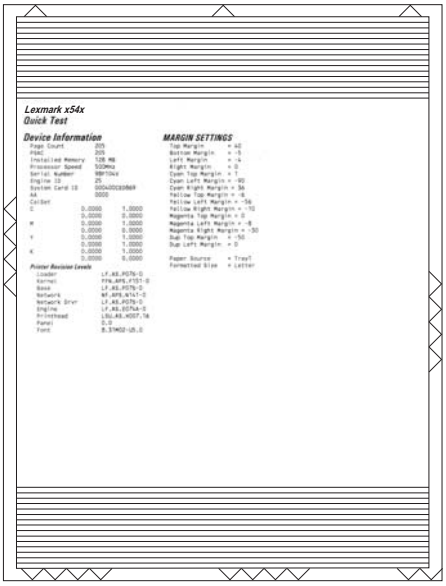
One printhead houses the four color planes. The black plane is aligned to the printer, and the other color planes are internally aligned to black. Electronic alignment fine tunes the alignment of the color planes to the black plane once the printhead is installed. See **"Alignment Menu" on page 3-11** for instructions on setting printhead alignment. This must be performed before color skew adjustment is attempted. The following illustration shows proper alignment versus skewed alignment.



Quick Test

The Quick Test contains the following information:

- Print registration settings
- Alignment diamonds at the left, right, top, and bottom
- Horizontal lines to check for skew
- General printer information, including current page count, installed memory, serial number, and code level



To print the Quick Test page:

Note: Print the Quick Test Page on Letter or A4 paper.

1. Navigate to **REGISTRATION** > **Quick Test**.
2. `Quick Test Printing...` appears, and the page prints. Retain this page to determine the changes you need to make to the margin settings. Once the Quick Test Page completes printing, the display returns to **REGISTRATION**.

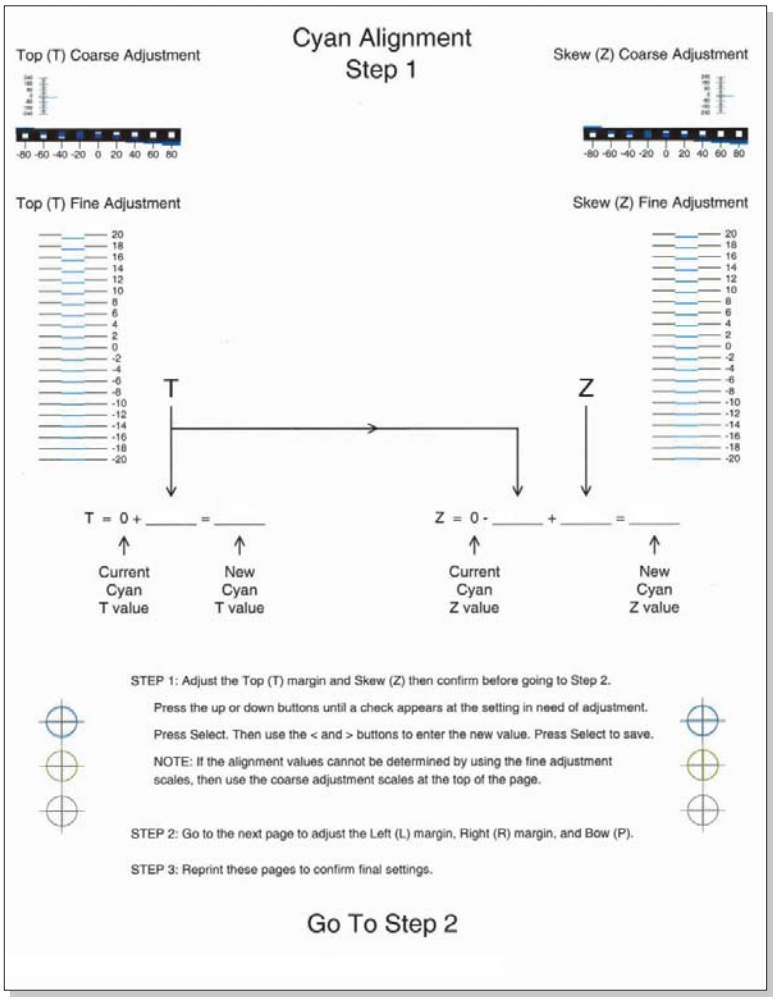
Alignment Menu

Aligns each of the color planes to the black plane. Print the Quick Test under each color, Cyan, Yellow, and Magenta, and adjust the Top Margin, Left Margin, Right Margin, Skew, and Bow.

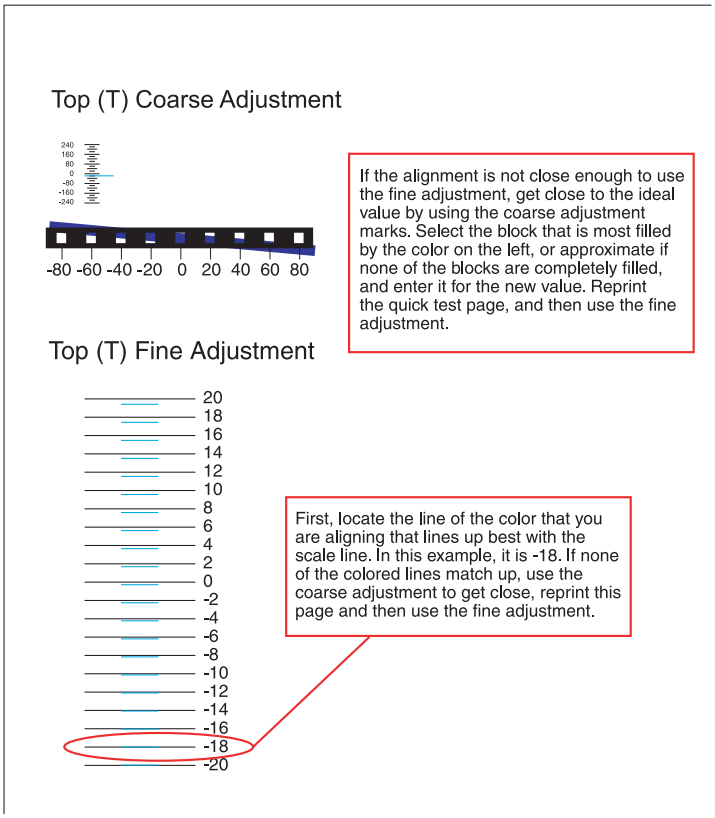
Prints the Print Alignment Pages and requires that the best line in each set of lines must be selected.

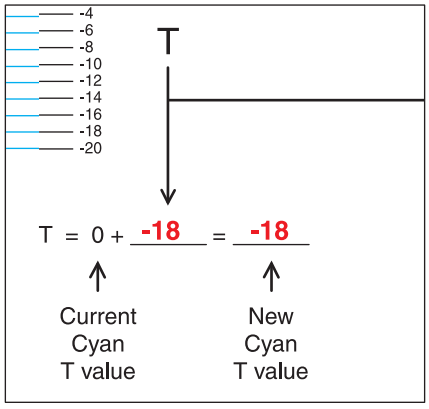
To get started:

1. Navigate to **Alignment Menu**.
2. Select a color (**Cyan**, **Yellow**, or **Magenta**).
   Note: The yellow alignment page markings are more difficult to see, so you might not want to pick it first.
3. Navigate to **Quick Test**, to print the Quick Test pages. `Quick Test Printing` appears, and a page similar to the following prints:


Cyan Alignment
Step 1
Top (T) Coarse Adjustment
Skew (Z) Coarse Adjustment
-80 -60 -40 -20 0 20 40 60 80
Top (T) Fine Adjustment
Skew (Z) Fine Adjustment
20 18 16 14 12 10 8 6 4 2 0 -2 -4 -6 -8 -10 -12 -14 -16 -18 -20
T
Z
T = 0 + _____ = _____
Current Cyan T value
New Cyan T value
Z = 0 - _____ + _____ = _____
Current Cyan Z value
New Cyan Z value
STEP 1: Adjust the Top (T) margin and Skew (Z) then confirm before going to Step 2.
Press the up or down buttons until a check appears at the setting in need of adjustment.
Press Select. Then use the < and > buttons to enter the new value. Press Select to save.
NOTE: If the alignment values cannot be determined by using the fine adjustment scales, then use the coarse adjustment scales at the top of the page.
STEP 2: Go to the next page to adjust the Left (L) margin, Right (R) margin, and Bow (P).
STEP 3: Reprint these pages to confirm final settings.
Go To Step 2

4. Select the best choice for fine or coarse adjustment in Step 1 (first page), and add it to the current value for the Top Margin.

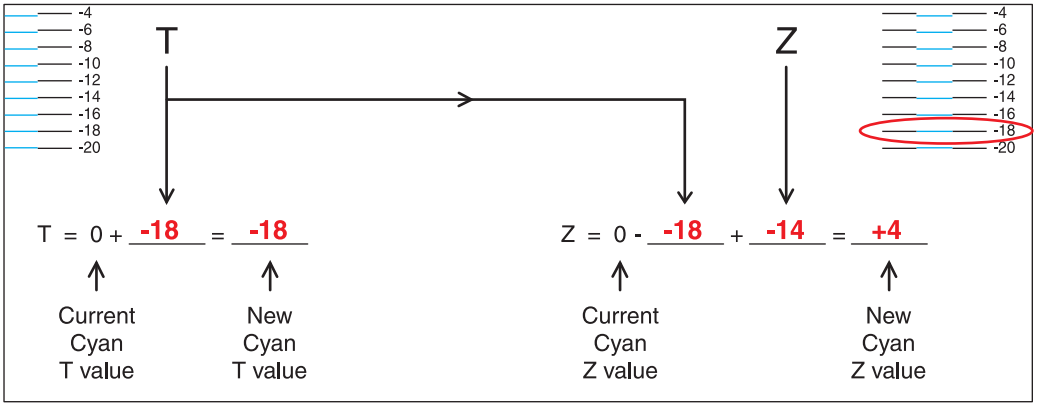

Top (T) Coarse Adjustment
-80 -60 -40 -20 0 20 40 60 80
If the alignment is not close enough to use the fine adjustment, get close to the ideal value by using the coarse adjustment marks. Select the block that is most filled by the color on the left, or approximate if none of the blocks are completely filled, and enter it for the new value. Reprint the quick test page, and then use the fine adjustment.
Top (T) Fine Adjustment
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
First, locate the line of the color that you are aligning that lines up best with the scale line. In this example, it is -18. If none of the colored lines match up, use the coarse adjustment to get close, reprint this page and then use the fine adjustment.



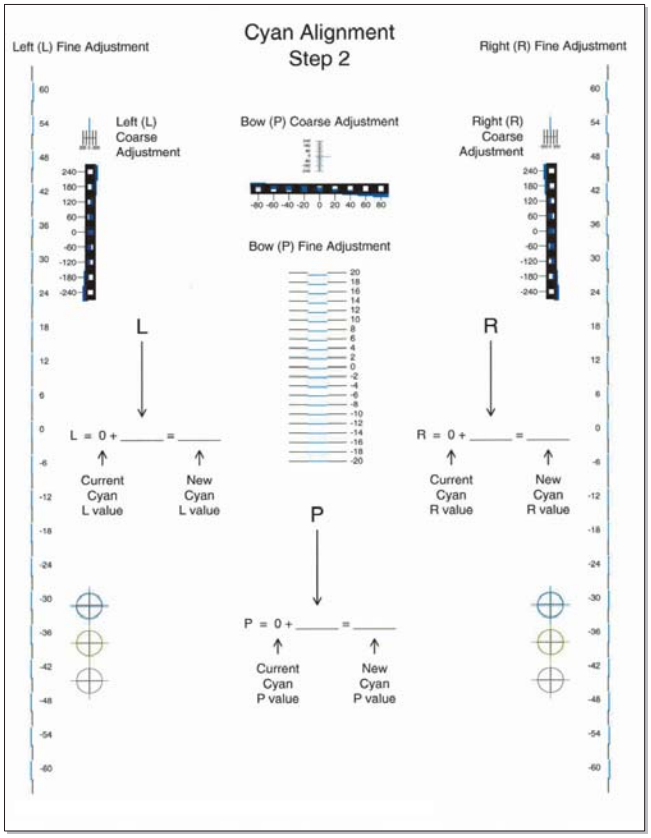
5. Use the ◄ or ► of the **Top Margin** setting to enter the sum of the numbers, and touch **Submit**. `Submitting changes` appears, and the display returns to the **Alignment Menu**.

Print the Quick Test again to verify if the observed value is the same as the current value (no change is needed). If change is still needed, repeat steps 4–5. When the observed values and the current value are the same, continue to the next step.

6. Select the Skew value in the same way, and touch **Submit**. Print the Alignment pages to see if the observed values and the current values are the same.



7. On the second page of the latest Quick Test pages printed, proceed to Step 2; adjust the left, right, and bow settings. Continue printing the Quick Test after each adjustment to verify the settings.



8. Continue on to the other two colors in the same manner.

Factory Scanner

Note: This setting is not used by field service.

Factory Manual

Note: This setting is not used by field service.

Scanner Calibration

Copy Quick Test

This test performs a copy from the scanner flatbed or duplex ADF using the printer's current settings.

To perform this test, navigate to **Diag Menu > Scanner Calibration > Copy Quick Test**.

Adjust Calibration Values

This setting adjusts the black value (mono and color bands) used in the gamma curve for a specific scan source. This should only be used to manually tune a replacement scanner's black gamma value.

To adjust these settings:

1. Navigate to **Diag Menu > Scanner Calibration > Adjust Calibration Values**.
2. Touch or to adjust the settings of the following:
   - Flatbed Black
   - ADF Front Black
   - ADF Back Black
3. Touch **Submit** to save the settings, or touch **Back** to return to **Scanner Calibration** without saving any changes.

Reset Flatbed, ADF Front, ADF Back Calibration Values

These settings revert the selected scan source's IQT-related black values to Nominal Black setting and its white values to Nominal White setting.

Note: This operation should be performed only when the printer's scanner has been replaced.

To reset these settings:

1. Navigate to **Diag Menu > Scanner Calibration**.
2. Touch **Reset Flatbed Calibration Values**, **Reset ADF Front Calibration Values,** or **Reset ADF Back Calibration Values**.
3. `Scanner calibration values should only be reset when the scanner is replaced. All customized scanner calibration data will be lost. Do you wish to continue?` appears. Touch **Yes** to reset the settings, or touch **No** to return to **Scanner Calibration**.

MISC TESTS

Motor Detect

This test initiates an automatic motor detection process that should be performed whenever the RIP board is replaced.

To run the test:

1. Navigate to **MISC TESTS**.
2. Touch **Motor Detect**.
3. `Motor Detection In Progress` appears. The process takes about 10 seconds, and stops automatically.
4. `Motor Auto Detect Test Passed` appears, and the display returns to **MISC TESTS**.

PRINT TESTS

Input source tests

The purpose of the diagnostic PRINT TESTS is to verify that the printer can print on media from each of the installed input options. The contents of the Print Test Page vary depending on the media installed in the selected input source.

Check each Test Page from each source to assist in print quality and paper-feed problems.

To run the Print Test Page:

1. Navigate to **PRINT TESTS**.
2. Select the media source to test.
3. Select **Single** or **Continuous**.
   - If **Single** is selected, a single page is printed.
   - If **Continuous** is selected, printing continues until × is pressed to cancel the test.

     If a source is selected that contains envelopes, an envelope test pattern is printed. If Continuous is selected, the test pattern is printed only on the first envelope.

   Note: The Print Test Page always prints on one side of the paper, regardless of the duplex setting.
4. Touch **Back** to return to **PRINT TESTS**.

Print Quality Pages

The print quality test consists of five pages. Pages one and two contain a mixture of graphics and text. The remainder of the pages contain only graphics. The test prints on the media in Tray 1.

This test may be printed from either Configuration Menu or the Diagnostics Menu.

To run the print quality pages from the Diag Menu:

1. Navigate to **PRINT TESTS > Print Quality Pages**.
2. `Printing Quality Test Pages` appears, and the pages print.
   Note: Once the test is started, it cannot be cancelled.

While the test pages print, the display returns to the **PRINT TESTS**.

HARDWARE TESTS

Panel Test

This test verifies the operator panel LCD function.

To run this test:

1. Navigate to **HARDWARE TESTS > Panel Test**.
2. The Panel Test continually executes.
3. Press × to cancel the test.

Button Test

This test verifies the operator panel button function.

To run this test:

1. Navigate to **HARDWARE TESTS > Button Test**.
2. An image of the operator panel buttons appears on the LCD. Press each operator panel button, and see if its corresponding button on the LCD darkens.
3. Touch **Back** to return to **HARDWARE TESTS**.

DRAM Test

This test checks the validity of DRAM, both standard and optional. The test writes patterns of data to DRAM to verify that each bit in memory can be set and read correctly.

To run this test:

1. Navigate to **HARDWARE TESTS > DRAM Test**.
2. **DRAM Test Testing** appears.
3. The printer initiates a POR and **Resetting the Printer** appears.
4. After POR, the printer begins testing the memory. `DRAM Test 512MB P:###### F:####` appears.

   `P:######` represents the number of times the memory test has passed and finished successfully. Initially, 000000 displays with the maximum pass count being 99,999.
   `F:#####` represents the number of times the memory test has failed and finished with errors. Initially, 0000 displays with the maximum fail count being 99,999.

5. Once all the memory is tested, the test stops.

To stop the test, POR the printer.

USB HS Test Mode

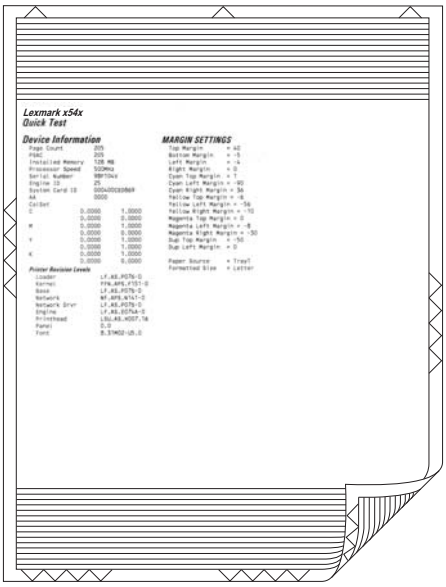
To run the test:

1. Navigate to **HARDWARE TESTS > USB HS Test Mode**.
2. Select a port (Port 0, Port 1, Port 2, Port 3, Single Step Get Device Descriptor, or Single Step Set Feature).
3. Select a test (Test J, Test K, Test SE0 NAK, Test Packet, or Test Force Enable).
4. `USB High Speed Certification Testing` appears.
5. To stop the test, POR the printer.

DUPLEX TESTS

Quick Test (duplex)

This test prints a duplex version of the Quick Test that can be used to verify the correct placement of the top margin on the back side of a duplex page.



Note: Before you set the duplex top margin, be sure to set the registration. See **"REGISTRATION" on page 3-9**.

The paper you choose to print the page on should be either Letter or A4.

To run the test:

1. Navigate to **DUPLEX TESTS > Quick Test**.
2. Select **Single** or **Continuous**.
   - The single Duplex Quick test prints the Quick Test on front and back.
   - The printer attempts to print the Quick Test Page from the default paper source.
   - Check the Quick Test Page for the correct offset between the placement of the first scan line on the front and back side of the duplexed sheet.

For information about changing the margin, see **"Top Margin (duplex)" on page 3-19**.

The single test stops automatically when a single duplex sheet is printed, and the continuous test continues until **Stop** is pressed.

Left Margin (duplex)

This setting shifts the image on the backside of the duplex sheet to the left or right to correctly position it on the page. Therefore, be sure to set the top margin in REGISTRATION before setting the duplex top margin. See **"REGISTRATION" on page 3-9**.

To adjust the setting:

1. Navigate to **DUPLEX TESTS > Quick Test > Single** to print a Quick Test page.
2. Hold the page to the light to see whether the left margin of the back aligns with the left margin of the front.
3. Select **Left Margin** from DUPLEX TESTS.

4. Touch ◄ or ► to adjust the margin setting.
   - Each increment shifts the duplex left margin by 4 pixels at 600 dpi (0.00666 inches or 0.1693 mm).
   - The Left Margin (duplex) range is -25 to + 25, and the default value is 0.
   - An increase in the value moves the backside margin to the right, and widens the left margin. A decrease moves the backside margin to the left, and narrows the left margin.
5. Touch **Submit** to save the settings.
6. Print the Quick Test (duplex) again (steps 1–4) to verify the adjustment. Repeat if necessary.

Top Margin (duplex)

This setting controls the offset between the first scan line on the front of the duplex page and the first scan line on the back of the page. Therefore, be sure to set the top margin in REGISTRATION before setting the duplex top margin. See **"REGISTRATION" on page 3-9**.

To adjust the setting:

1. Navigate to **DUPLEX TESTS > Quick Test > Single** to print a Quick Test page.
2. Hold the page to the light to see whether the top margin of the back aligns with the top margin of the front.
3. Select **Top Margin** from DUPLEX TESTS.
4. Touch ◄ or ► to adjust the margin setting.
   - Each increment shifts the duplex top margin by 1/100 of an inch.
   - The Top Margin (duplex) range is -50 to +50, and the default value is 0.
   - An increase in the value moves the backside top margin down and widens the top margin. A decrease moves the top margin upward and narrows the top margin.
5. Touch **Submit** to save the settings.
6. Print the Quick Test (duplex) again (steps 1–4) to verify the adjustment. Repeat if necessary.

INPUT TRAY TESTS

Feed Tests

This test allows you to observe the paper path of media as it passes through the printer. Any installed input tray can be tested. The pages fed through the printer are blank.

To run the Feed Test:

1. Navigate to **INPUT TRAY TESTS > Feed Tests**.
2. Select the tray to be tested. Choices are installed trays, including Tray 1, Tray 2, and MP Feeder.
3. Open the upper rear door to view the paper path.
   Note: Do not open the upper front door. The test will not run if the front door is open.
4. Select **Single** or **Continuous**.
   - Single—a single sheet of blank paper is fed, and the test stops.
   - Continuous—sheets are fed continuously until **Stop** is pressed.

Sensor Test

This test is used to verify that the sensors are working correctly for an individual input tray.

1. Navigate to **INPUT TRAY TESTS > Sensor Test**.
2. Select the tray where you want to test the sensors. Depending on the tray selected, you may have **Empty Sensor**, **Low Sensor**, or **Pass thru Sensor**.
   Sensors will be displayed with either `Open` or `Closed`. Toggle the sensor you want to test, and note the change of state of that sensor.

Input Tray	Empty Sensor	Low Sensor	Pass thru Sensor
Tray 1	✘	✘	✘
Tray 2 (650-sheet duo tray)	✔	✔	✔
MP Feeder	✘	✘	✘

To Exit the test, press **Stop**.

BASE SENSOR TEST

These tests allow you to verify the correct functioning of the front door, input, and output sensors.

1. Navigate to **BASE SENSOR TEST**.
2. Select the sensor to test.
   The following tests are available:

Sensor	Value	How to test
Front Door	Value open/ Value closed	Open and close front door. The sensor should change state.
Standard Bin	Bin empty/ Bin full	Toggle the bin full media flag attached to the redrive unit.
Input - S1	Media clear/ Media present	Remove the media tray. Activate the input sensor flag. The sensor should change state.
Input - S2		Remove and re-insert the media tray. The sensor should change state.
Fuser Exit		Open the front door. Activate the fuser exit flag. The sensor should change state.
C-TMC Sensor	Not closed/ Closed	Remove the cyan toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
M-TMC Sensor		Remove the magenta toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
Y-TMC Sensor		Remove the yellow toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
K-TMC Sensor		Remove the black toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.

3. To stop the test, press ✕ .

DEVICE TESTS

Flash Test

This test appears only when a non-defective flash memory is installed. Data is written to the flash card and read back to check the accuracy. This test destroys all data stored on the flash device.

Warning: This test deletes all data stored on the flash device. After the test is over, reformat the flash using **Format Flash** in the customer Utilities Menu.

To perform this test:

1. Navigate to **DEVICE TESTS > Flash Test**.
2. `Contents will be lost. Continue?` appears. Touch **Yes** to continue, or touch **No** to return to **DEVICE TESTS**.
3. `Flash Test Testing...` appears while the test is running.
4. When the test is complete, `Flash Test Test Passed` or `Flash Test Test Failed` appears.

Quick Disk Test

This menu item appears only when a non-defective disk is installed. This test performs a non-destructive read/write on one block per track on the disk. Once executed, the test cannot be canceled.

To perform this test:

1. Navigate to **DEVICE TESTS > Quick Disk Test**.
2. `Quick Disk Test Testing DO NOT POWER OFF` appears.
3. When the test is complete, `Quick Disk Test Test Passed` or `Quick Disk Test Test Failed` appears.

Disk Test/Clean

This test performs a low-level format of the hard disk which will destroy all data and should never be performed on a good disk. This test will only be used when the disk contains bad data and is unusable.

Note: This process does not erase any information stored on the device's NAND.

To perform this test:

1. Navigate to **DEVICE TESTS > Disk Test/Clean**.
2. `Contents will be lost. Continue?` appears. Touch **Yes** to continue, or touch **No** to return to **DEVICE TESTS**.
3. Once the test starts, it cannot be stopped.
4. When the test is complete, `Disk Test/Clean Test Passed` or `Disk Test/Clean Test Failed` appears.

PRINTER SETUP

Defaults

US/Non-US defaults changes whether the printer uses the US factory defaults or the non-US factory defaults. The settings affected include paper size, envelope size, PCL symbol set, code pages, and units of measure.

Warning: Changing this setting resets the printer to factory defaults, and data may be lost. It cannot be undone.

To change this setting, navigate to **PRINTER SETUP > Defaults**.

Prt Color Pg Count, Prt Mono Pg Count and Perm Page Count

These page counts can only be viewed and cannot be changed.

To view these settings:

1. Navigate to **PRINTER SETUP**.
2. Navigate to the page count you wish to view:
   - **Prt Color Pg Count**
   - **Prt Mono Pg Count**
   - **Perm Page Count**

   The value of the page count appears beside the page count category.

Serial Number

This setting records the serial number that was assigned by manufacturing.The serial number can be viewed and can also be changed.

To view or change the serial number:

1. Navigate to **PRINTER SETUP > Serial Number**.
2. Type the serial number using the on-screen keyboard.
3. Touch **Submit** to save the settings, or touch **Back** to return to **PRINTER SETUP** without saving any changes.

Engine Setting 1 through 4

Warning: Do not change these settings unless requested to do so by your next level of support.

Model Name

The model name can only be viewed and cannot be changed.

Configuration ID

The two configuration IDs are used to communicate information about certain areas of the printer that cannot be determined using hardware sensors. The configuration IDs are originally set at the factory when the printer is manufactured. However, the servicer may need to reset Configuration ID 1 or Configuration ID 2 whenever the RIP board is replaced. The IDs consist of eight digits. The first seven digits in each ID are hexadecimal numbers, while the last digit is a checksum of the preceding seven digits. Each ID can contain a combination of the digits 0 through 9, and the letters A through F.

Note: When the printer detects a Configuration ID that is not defined or invalid, the following occurs:

- The default standard model Configuration ID is used instead.
- Configuration ID is the only function available in DIAGNOSTICS.
- Unless the menu is in DIAGNOSTICS, `Check Config ID` displays.

To set the configuration ID:

1. Navigate to **PRINTER SETUP > Configuration ID**.
2. The cursor appears in the Configuration ID 1 field. Touch **Backspace** to delete Configuration ID 1.
3. Enter the new Configuration ID 1.
4. Touch the **Next** icon to switch to the Configuration ID 2 field.
5. Touch **Backspace** to delete Configuration ID 2.
6. Enter the new Configuration ID 2.

7. Touch **Submit** to save the settings, or touch **Back** to return to **PRINTER SETUP** without saving any changes.
   Note: If either Configuration ID is invalid, `Invalid ID` appears. The printer discards the changes and the display returns to **PRINTER SETUP**. If both Configuration IDs are valid, `Submitting changes` appears and the display returns to **PRINTER SETUP**.

ITU Barcode

The 16-digit numeric value matches the ITU installed in the printer. If you replace the ITU, re-enter this value.

To enter the ITU barcode:

1. Navigate to **PRINTER SETUP > ITU Barcode.**
2. Enter the 16-digit value.
3. Touch **Submit** to save the settings, or touch **Back** to return to **PRINTER SETUP** without saving any changes.
   Note: `CHECK SUM DOES NOT MATCH` appears if the value entered is incorrect. Check and re-enter the value.

Reset Maintenance Counter

To reset the Maintenance Counter:

1. Navigate to **PRINTER SETUP** > **Reset Maintenance Counter** > **Reset Maintenance Counter**.
2. `Resetting Maintenance Counter` appears.

Reset Fuser Cnt

Resets the fuser count value to zero. The Event Log records each time that a user executes the Reset Fuser Count operation. See **“Event Log” on page 3-34** for more information. This setting appears only if the Maintenance Warning and Intervention function is enabled in the printer Configuration ID.

Note: Once Reset Fuser Count is initiated, the sequence cannot be canceled. The printer ignores all key inputs.

To reset the Fuser cnt:

1. Navigate to **PRINTER SETUP > Reset Fuser Cnt > Reset Fuser Cnt**.
2. `Resetting Fuser Cnt Value` appears.

EP Setup

EP Defaults

Warning: Do not change the settings of this menu without guidance from your next level of support.

This setting is used to restore each printer setting listed in EP SETUP to its factory default value.

To restore EP Defaults:

1. Navigate to **EP SETUP > EP Defaults**.
2. Touch **Restore** to reset the values to the factory settings, or touch **Do Not Restore** to exit without resetting.
3. The display returns to **EP SETUP**.

Fuser Temp

This adjustment can be used to help solve some problems of paper curl on low-grade papers and/or melting of letterheads on some types of media.

To change this setting:

1. Navigate to **EP SETUP > Fuser Temp**.
2. Touch or to select **Normal**, **High**, or **Low**. The default is Normal.
3. Touch **Submit** to save the settings, or touch **Back** to return to the Diagnostics Menu without saving any changes.

DC Charge Adjust, Dev Bias Adj, Transfer Adjust

Each of these three settings enables you to adjust the high-voltage levels controlling the electro photographic process. You will use these settings to compensate for unusual operating circumstances such as high humidity. The printer uses the value of these settings together with other settings to calculate printing speed and media selection.

TPS Setup

Right or Left TPS

The value of the TPS sensor is set at manufacturing. If a sensor is replaced, enter the 32-digit hexadecimal TPS value associated with the sensor.

To enter the value:

1. Navigate to **TPS Setup**.
2. Select **Right** or **Left**, and touch the **Keyboard** icon.
3. Change the TPS value.
   a. Touch **Clear**.
   b. Enter the TPS value.
   c. Touch **Submit** to save the settings.
4. `Submitting changes` appears.
   - If the number is incorrect, `Checksum does not match` appears, and the original screen appears to re-enter the value.
   - If the number is correct, `Saving changes to NVRAM` appears.

Reset Color Cal

This setting allows the device to adjust the alignment of the color planes using pre-programmed default values.

To reset the programmed value:

1. Navigate to **TPS Setup > Reset Color Cal**.
2. `Resetting` appears. When the reset is complete, the display returns to TPS Setup.

Cal Ref Adj

Used with Reset Color Cal, which resets to a default value, Cal Ref Adj allows you to fine tune the TPS function.

To change this setting:

1. Navigate to **TPS Setup > Cal Ref Adj**.
2. Touch or to adjust the values of **Tps CMY** and **Black**.
3. Touch **Submit** to save the settings.

REPORTS

Menu Settings Page

The “Menu Settings Page” report generates a list of the Diagnostics Menu settings and each setting’s current value.

To print the Menu Settings Page, navigate to **Reports > Menu Settings Page**.

Event Log

Display Log

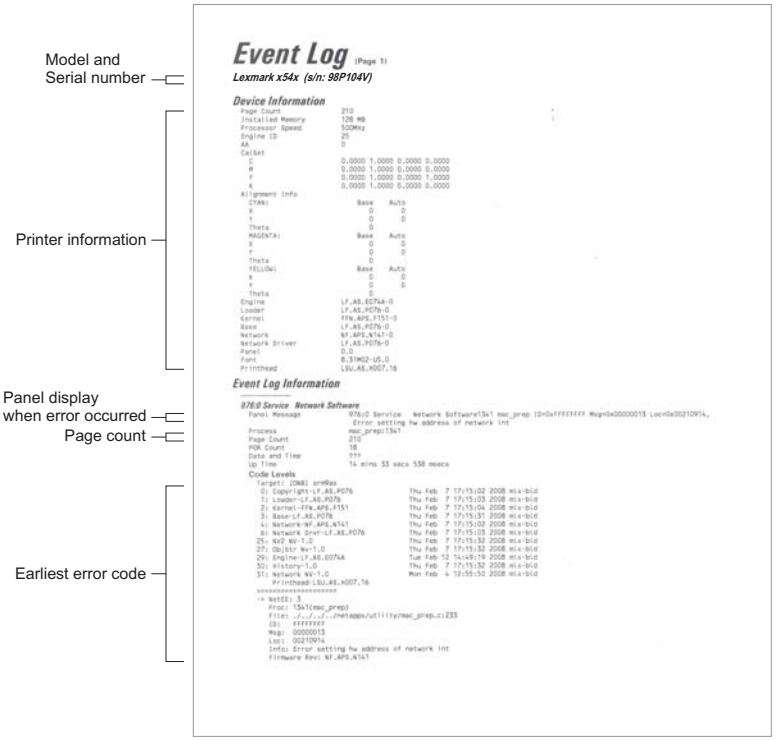
Log entries appear in chronological order beginning with the most recent entry at the top of the list. If more than one screen of entries exists, you may scroll down to view the next set of entries.

To view the event log, navigate to **EVENT LOG > Display Log**.

Print Log

The Event Log printed from DIAGNOSTICS includes:

- Detailed printer information, including code versions
- Time and date stamps
- Page counts for most errors
- Additional debug information in some cases



The printed event log can be faxed to your next level of support for verification or diagnosis.

To print the event log, navigate to **EVENT LOG > Print Log**.

Clear Log

Use Clear Log to remove the current information in the Event Log. This affects both the viewed log and the printed log information.

1. Navigate to **EVENT LOG > Clear Log**.
2. Touch **YES** to clear the Event Log, or **NO** to exit the Clear Log menu.

SCANNER TESTS

ASIC Test

This test initiates a scan of the scanner's ASIC memory, navigate to **SCANNER TESTS > ASIC Test**.

While this test is executing `ASIC Test Running` is displayed. When the test is complete, `ASIC Test Passed` displays or if the ASIC fails, `ASIC Test Failed` displays.

Feed Test

This test executes a continuous feed test from the ADF or flatbed.

Note: Neither test produces printed output, or increments any MPS counters.

1. Navigate to **SCANNER TESTS > Feed Test**.
2. Touch ◄ or ► to select the paper size.
3. Touch **Submit**. `Feed Test Running` appears.
4. `Running... Flatbed:xxxx ADF:xxxx` appears while the feed test is executing.
5. Press **Stop** to end the test.

Sensor Tests

A series of sensor tests are available to test the scanner's ADF and flatbed sensor functionality. The following table lists the available tests.

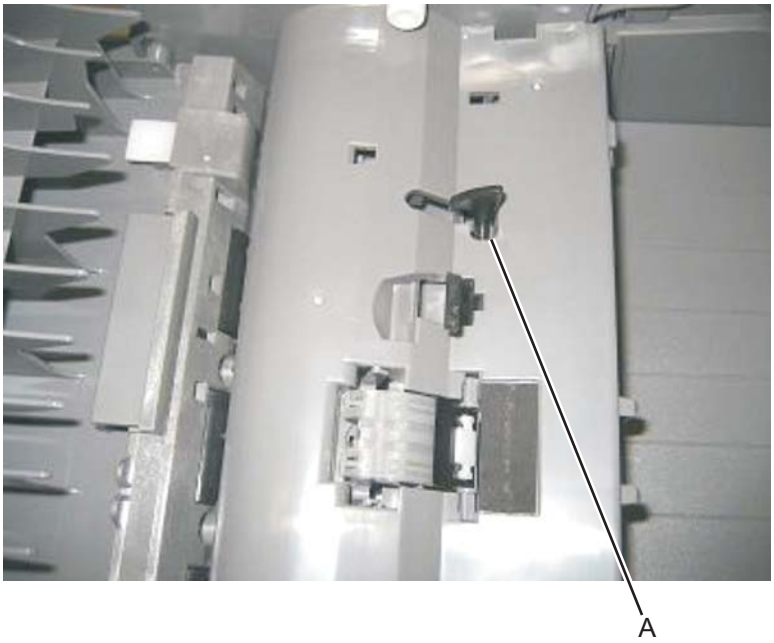
To access the sensor tests, navigate to **SCANNER TESTS > Sensor Tests**.

Sensor	Toggle state and description
ADF Paper Present	0: Paper not present in the ADF 1: Paper present in the ADF
FB Cover Open	0: Flatbed cover closed 1: Flatbed cover open
Home Sensor	Closed: Scanner carriage not positioned over the home sensor. Open: Scanner carriage positioned over the home sensor.
ADF Cover Open	0: ADF cover closed 1: ADF cover open
Scan 1st sensor	0: Paper isn't above this sensor. 1: Paper is being fed from the ADF and the top edge passes over this sensor.
Scan 2nd sensor	0: Paper isn't above this sensor 1: Paper is being fed from the ADF and the top edge passes over this sensor.

ADF paper present sensor test

This test should be used if the ADF fails to feed paper when a scan is performed**.** To test this sensor:

1. `ADF Paper Present: 0` appears.
2. Open the ADF top cover.
3. Press and hold the ADF paper present sensor actuator (A) at the top of the ADF unit.



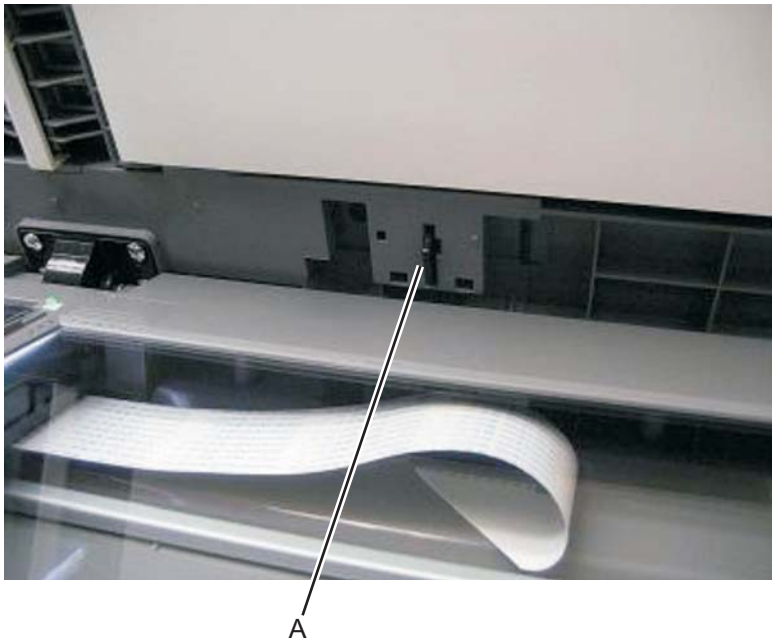
4. The value of `ADF Paper:` should change from `0` to `1` if the sensor is working properly.
5. Press ✕ to return to **SCANNER TESTS**.

FB cover open sensor test

This test verifies the functionality of the FB cover closed sensor. To test this sensor:

1. `FB Cover Open: 0` appears.
2. Lift the flatbed cover, the value of `FB Cover Open` changes from `0` to `1`.

3. Press and hold the FB cover actuator (A).



4. The value of `FB Cover:` should change from `1` to `0` if the sensor is working properly.
5. Press ✕ to return to **SCANNER TESTS**.

ADF cover open sensor test

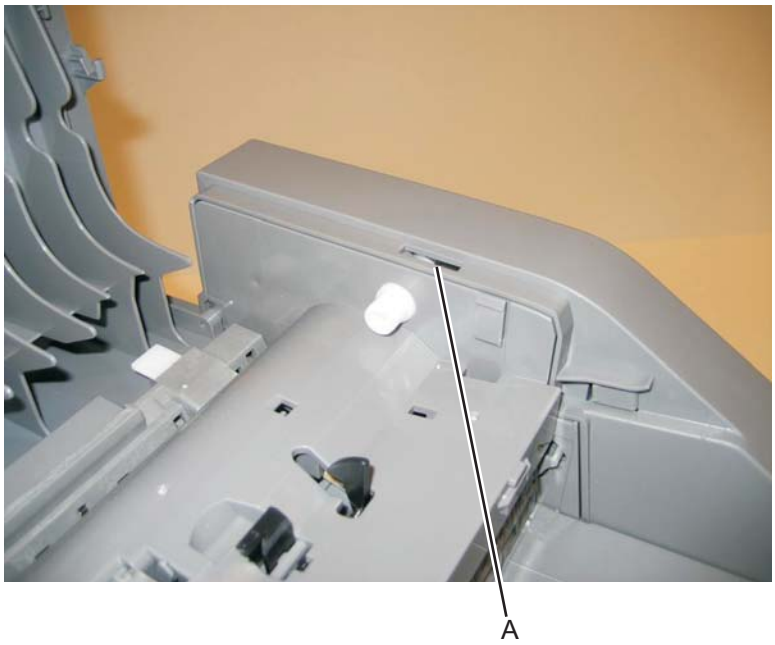
This test verifies the functionality of the ADF cover closed sensor. To test this sensor. perform the following steps:

1. `ADF Cover Open: 0` appears.
2. Lift the ADF top cover.
3. The value of `ADF Cover Open:` should change from `0` to `1` if the sensor is working properly.
4. Press ✕ to return to **SCANNER TESTS**.

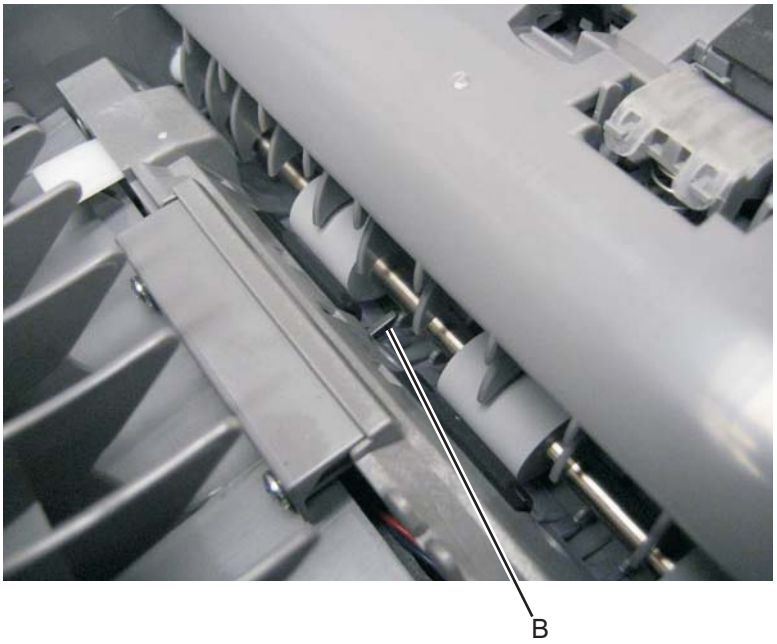
Scan 1st sensor test

This test verifies the functionality of scan sensor 1. To test this sensor. perform the following steps:

1. `Scan 1st Sensor: 0` appears.
2. Lift the ADF top cover, and close the ADF cover sensor by pressing down on the ADF sensor actuator (A) with a small flat-blade screwdriver.



3. Press the Sensor 1 actuator (B) located in the ADF paper path. The value of `Scan 1st Sensor:` should change from `0` to `1` if the sensor is working properly.

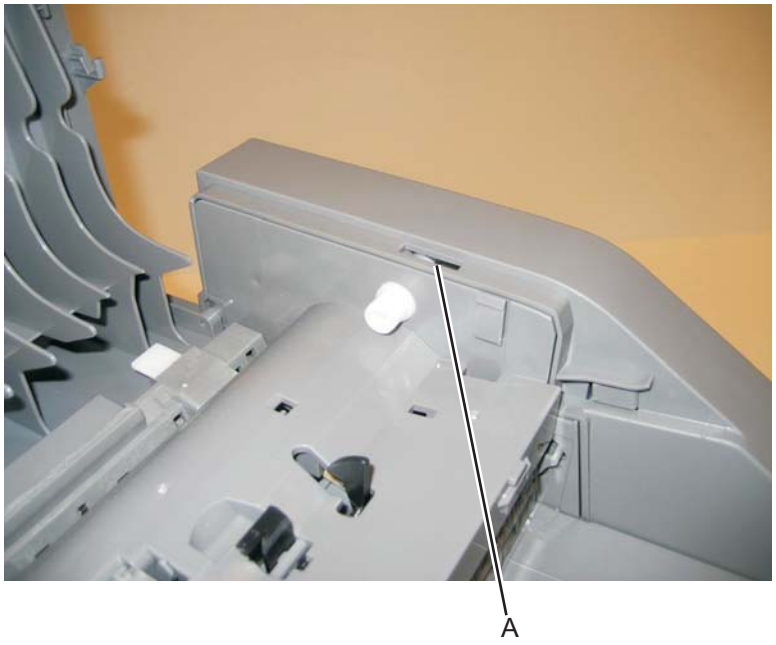


4. Press ✕ to return to SCANNER TESTS.

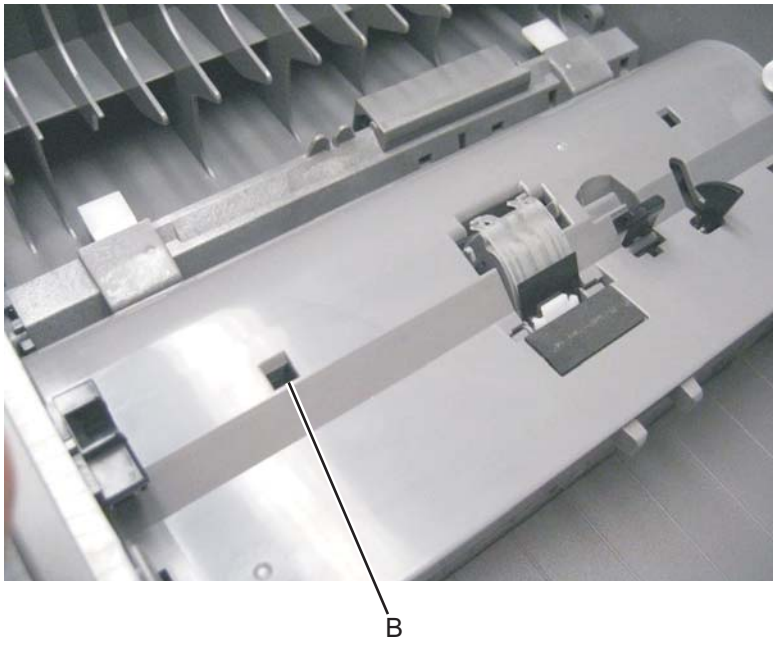
Scanner 2nd sensor test

This test verifies the functionality of scan Sensor 2. To test this sensor, perform the following steps:

1. `Scan 2nd Sensor: 0` appears.
2. Lift the ADF top cover, and close the ADF cover sensor (A) by pressing down on the ADF sensor actuator with a small flat-blade screwdriver.



3. Move the Sensor 2 actuator by inserting a small screwdriver into the hole (B) and gently toggling the actuator. The value of `Sensor 2:` should change from `0` to `1` if the sensor is working properly.



4. Press ✕ to return to **SCANNER TESTS**.

Scanner Calibration Reset

This procedure should be run after the scanner or ADF has been replaced.

ADF Magnification

This setting enables the adjustment of the ADF's magnification.

To adjust this setting:

1. Navigate to **SCANNER TESTS > ADF Magnification**.
2. Touch or to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Diagnostics Menu without saving any changes.

EXIT DIAGS

This setting appears as a button on the bottom right-hand corner of the display and is always accessible from the Diagnostics Menu.

Touch this to exit the Diagnostics Menu. The printer performs a POR and starts in normal mode.

Configuration Menu

Available tests

The tests display on the operator panel in the order shown:

Reset Separator Roll and Pick Assembly Counter	See **“Reset Separator Roll and Pick Assembly Counter” on page 3-33**.
USB Scan to Local	See **“USB Scan to Local” on page 3-33**.
Print Quality Pages	See **“Print Quality Pages” on page 3-33**.
Reports	See **“Reports” on page 3-33**.
Color Trapping	See **“Color Trapping” on page 3-34**.
Panel Menus	See **“Panel Menus” on page 3-34**.
PPDS Emulation	See **“PPDS Emulation” on page 3-35**.
Factory Defaults	See **“Factory Defaults” on page 3-35**.
Energy Conserve	See **“Energy Conserve” on page 3-36**.
Fax Low Power Support	See **“Fax Low Power Support” on page 3-36**.
Min Copy Memory	See **“Min Copy Memory” on page 3-36**.
NumPad Job Assist	See **“NumPad Job Assist” on page 3-37**.
Format Fax Storage	See **“Format Fax Storage” on page 3-37**.
Fax Storage Location	See **“Fax Storage Location” on page 3-37**.
Automatic Color Adjust	See **“Automatic Color Adjust” on page 3-37**.
ADF Edge Erase	See **“ADF Edge Erase” on page 3-38**.
FB Edge Erase	See **“FB Edge Erase” on page 3-38**.
Scanner Manual Registration	See **“Scanner Manual Registration” on page 3-38**.
Disable Scanner	See **“Disable Scanner” on page 3-39**.
Jobs On Disk	See **“Jobs On Disk” on page 3-39**.
Disk Encryption	See **“Disk Encryption” on page 3-39**.
Erase All Information on Disk	See **“Erase All Information on Disk” on page 3-39**.
Wipe All Settings	See **“Wipe All Settings” on page 3-39**.
Font Sharpening	See **“Font Sharpening” on page 3-40**.
Require Standby	See **“Require Standby” on page 3-40**.
UI Automation	See **“UI Automation” on page 3-40**.
Key Repeat Initial Delay	See **“Key Repeat Initial Delay” on page 3-41**.
Key Repeat Rate	See **“Key Repeat Rate” on page 3-41**.
Clear Custom Status	See **“Clear Custom Status” on page 3-41**.
Pel Blurring	See **“Pel Blurring” on page 3-40**.
USB Speed	See **“USB Speed” on page 3-41**.
USB PnP	See **“USB PnP” on page 3-42**.
Automatically Display Error Screens	See **“Automatically Display Error Screens” on page 3-42**.
Exit Config Menu	See **“Exit Config Menu” on page 3-42**.

Reset Separator Roll and Pick Assembly Counter

To reset the counter:

1. Navigate to **Reset Separator Roll and Pick Assembly Counter.**
2. Touch **Reset Separator Roll and Pick Assembly Counter** to reset the counter.
3. `Resetting` appears, and the display returns to **Reset Separator Roll and Pick Assembly Counter**.

USB Scan to Local

USB Scan to Local enumerates a USB simple device or USB composite device. In the off position, the simple USB device is enumerated: in the on position, the composite USB device is enumerated.

To change this setting:

1. Navigate to **USB Scan to Local**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Print Quality Pages

The Print Quality Pages can be printed from both the Configuration Menu and the Diagnostics Menu. The Configuration Menu is limited in information compared to the pages printed from the Diagnostics Menu.

To print the pages:

1. Navigate to **Print Quality Pages**.
2. `Printing Quality Test Pages` appears, and the pages print.

The Print Quality Test Pages contain several pages. The first page which is printed in English text contains only a mixture of text and graphics. The information includes values of the Quality Menu settings in Settings and printer and toner cartridge configuration information. The remaining pages contain only graphics. For samples of the pages, see **“Print Quality Pages” on page 3-16**.

Reports

Menu Settings Page

Print the menu settings pages to list the customer settings and to verify printer options are installed correctly. It is helpful to print the customer settings before you restore factory defaults or make major changes.

To print the menu settings:

1. Navigate to **Reports > Menu Settings Page**.
2. `Printing Menu Settings Page` appears, and the pages print.

Event Log

Lets the system support person print a limited set of the information contained in the Diagnostics Menu version of the printed Event Log. For a sample of a printout, see **"Event Log" on page 3-25**. The limited Configuration log and the full Diagnostics log printed versions show the same operator panel messages when they print and follow the same layout guidelines.

To print the event log:

1. Navigate to **Reports > Event Log**.
2. `Printing EVENT LOG` appears, and the pages print.

Color Trapping

Color trapping uses an algorithm to compensate for mechanical misregistration in the printer. When small black text or fine black lines are being printed, the printer checks to see if they are being printed on top of a colored background. If so, rather than remove the color from beneath the black content, the printer leaves the color around the edge of the text or line. The hole in the colored region is reduced in size, which prevents the characteristic white gap that is caused by incorrect registration.

To adjust this setting:

1. Navigate to **Color Trapping**.
2. Touch or to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Values include Off and numbers 1–5 (the default is 2). Values 1 through 5 indicate the amount of color remaining beneath the black content. The default is each setting increments by 1/600 of an inch. The more inaccurate the registration setting, the higher the setting needs to be adjusted. Selecting **Off** disables color trapping.

Tray Insert Msg

This setting determines how many seconds the panel will display the Tray Insert message after a tray is inserted into the printer.

To change this setting:

1. Navigate to **Tray Insert**.
2. Touch or to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Panel Menus

Lets the system support person enable or disable the operator panel menus.

To change this setting:

1. Navigate to **Panel Menus**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

PPDS Emulation

The value of the PPDS Emulation menu item determines if a device can recognize and use the PPDS data stream. The current value of this setting appears in parentheses to the right of the setting on the Configuration Menu screen.

The following table indicates how the value of this setting affects the user default value for the SmartSwitch and Printer Language settings:

Value of PPDS Emulation setting	Resulting value of SmartSwitch setting (all ports)	Resulting value for Printer Language settings
Activate	Off	PPDS Emulation **Note:** You can still switch languages on the operator panel or through the PJL ENTER LANGUAGE command.
Deactivate	On	Printer's factory default value

To change this setting:

1. Navigate to **PPDS Emulation**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Factory Defaults

Sets the majority of printer values back to their factory default settings.

Warning: This selection cannot be reversed, so this operation should be used only as a last resort to fix any printer problem. When factory default settings are restored:

- All downloaded resources (fonts, macros, symbol sets) in the printer memory (RAM) are deleted.
- All menu settings return to the factory default setting *except*:
  - The Display Language setting in the Setup Menu.
  - All settings in the Parallel Menu, Serial Menu, Network Menu, Infrared Menu, Local Talk Menu, and USB Menu.

It is recommended to view current settings by printing the Menu Settings pages. Customer settings are available from the Ready prompt, Diagnostics Menu settings are available in the Diag Menu, and Configuration Menu settings are available in the Configuration Menu.

1. Turn off the printer, or select **Exit Config Menu**.
2. At the home screen, touch .
3. Navigate to **Reports > Menu Settings Page**.
4. Print the Menu Settings pages from the Diagnostics Menu. See **"Menu Settings Page" on page 3-25**.
5. Turn off the printer, or select **Exit Diags**.
6. Print the Menu Settings pages from the Configuration Menu. See **"Menu Settings Page" on page 3-33**.

To reset factory defaults:

1. Navigate to **Factory Defaults**.
2. Choose the setting to reset:
   - **Restore Base**—resets all non-critical base NVRAM settings
   - **Restore STD NET**—resets the eSF configuration
   - **Restore LES**—resets all network NVRAM settings
3. `Restoring Factory Defaults` appears, followed by `Resetting the Device`. The printer performs a POR.

Energy Conserve

Affects the values that display in the Sleep Mode setting in the General Settings Menu. This menu item appears only when the printer model does not support Automatic Power Saver or has deactivated Automatic Power Saver. The menu item affects only the values that are displayed in the Power Saver menu item.

Select **Off** in Energy Conserve to allow Power Saver in the customer menu to display Disable as an option. If **Disable** is selected in the customer Power Saver, the printer deactivates the Power Saver feature. Select **On** (the default) in Energy Conserve to prevent **Disable** from appearing as an option in the Power Saver setting, and preventing the customer from turning off Power Saver.

To change this setting:

1. Navigate to **Energy Conserve**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Fax Low Power Support

To change this setting:

1. Navigate to **Fax Low Power Support**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Min Copy Memory

This setting allocates the amount of DRAM memory to be used for storing copy jobs in the priority queue. 25, 35,50,80 and 100 MB are the available settings. 80 MB is the default setting.

To adjust this setting:

1. Navigate to **Min Copy Memory**.
2. Touch or to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

NumPad Job Assist

This setting determines if a user can configure and initiate a job using the panel's hard buttons.

To change this setting:

1. Navigate to **NumPad Job Assist**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Format Fax Storage

This setting allows the user to format non volatile fax storage memory.

To format the fax storage:

1. Navigate to **Format Fax Storage**.
2. Touch **Yes** to continue, or touch **No** to return to the Configuration Menu.
3. While formatting is taking place, `Formatting fax flash DO NOT POWER OFF` appears. After formatting is complete, the display returns to the Configuration Menu.

Fax Storage Location

To change this setting:

1. Navigate to **Fax Storage Location**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Automatic Color Adjust

Sets the suggested number of pages which the printer should print between consecutive calibrations.

Selections are **Off** and the values between **100** and **1000** in increments of 50. The default is 500 pages.

If the printer exceeds the set value while printing a job, it completes the current job and any other jobs received while printing the current job before it initiates a calibration. The printer does not cancel or suspend an active job in order to perform a calibration. If a user is using the menus, including the Configuration Menu and the Diagnostics Menu, an automatic color adjust calibration does not occur.

When an event other than page count triggers this calibration, the count that monitors the maximum number of pages printed will be reset. For example, if the user replaces an empty toner cartridge, the next time the printer is started, it will sense the new cartridge and perform the automatic color adjustment, even though the page counter for Auto Color Adj is fewer than required. The Auto Color Adj page counter is then reset.

Note: An automatic color adjust can also be initiated manually. This calibration procedure should be performed when the MFPs internal print settings are changed. To perform and automatic color adjust, perform the following steps:

To adjust this setting:

1. Navigate to **Automatic Color Adjust**.
2. Touch or to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

ADF Edge Erase

This menu item sets the size, in millimeters, of the no-print area around an ADF scan job. All copy jobs have a two-millimeter minimum border. Copy jobs will use the setting or two millimeters, whichever is larger.

To adjust this setting:

1. Navigate to **ADF Edge Erase**.
2. Touch or to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

FB Edge Erase

This menu item sets the size, in millimeters, of the no print are around a flatbed scan job. All copy jobs have a two- millimeter minimum border. Copy jobs will use the setting or two millimeters, whichever is larger

To adjust this setting:

1. Navigate to **FB Edge Erase**.
2. Touch or to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Scanner Manual Registration

This item is used to manually register the flatbed and ADF on the MFP's scanner unit. Registration should be performed whenever the ADF unit, flatbed unit, or controller card are replaced.

To manually register the ADF:

1. Navigate to **Scanner Manual Registration > Print Quick Test** to print a Quick Test page.
2. To view the ADF's current registration:
   - Place the Quick Test page in the ADF with the image facing up, and touch **Copy Quick Test** to view the frontside registration.
   - Place the Quick Test page in the ADF with the image facing down, and touch **Copy Quick Test** to view the backside registration.
3. To adjust the ADF's registration:
   - Touch **ADF Front** to adjust the frontside registration.
   - Touch **ADF Back** to adjust the backside registration.
4. Touch or to adjust the settings for the Horizontal Adjust or the Top Margin.
5. Touch **Submit** to save the changes or touch **Back** to return to **Scanner Manual Registration** without saving any changes.
6. Repeat step 2 to verify the adjustments.
7. Repeat steps 1–6 to make further adjustments.

To manually register the flatbed:

1. Navigate to **Scanner Manual Registration > Print Quick Test** to print a Quick Test page.
2. Remove all pages from the ADF.
3. Place the Quick Test page on the flatbed, and touch **Copy Quick Test** to view the flatbed's current registration. The printer performs a mono, text mode scan.
4. Touch **Flatbed** to adjust the flatbed's registration.
5. Touch or to adjust the settings for the Left Margin or the Top Margin.
6. Touch **Submit** to save the changes, or touch **Back** to return to **Scanner Manual Registration** without saving any changes.
7. Repeat step 3 to verify the adjustments.
8. Repeat steps 1–7 to make further adjustments.

Disable Scanner

This menu item is used to disable the MFP scanner if it is malfunctioning. The MFP must be powered off and on for the new settings to take effect.

To change this setting:

1. Navigate to **Disable Scanner**.
2. Touch or to change the setting.
3. Touch **Submit** to save the changes, or touch **Back** to return to the Configuration Menu without saving any changes.

Jobs On Disk

This setting allows you to delete buffered jobs saved on the disk.

To delete jobs saved on the disk:

1. Navigate to **Jobs On Disk**.
2. Touch **Delete** to delete the jobs, or touch **Do not delete** to return to the Configuration Menu.

Disk Encryption

This setting controls whether the device encrypts the information that it writes to the hard disk.

Note: The device deletes all information from the hard disk whenever this setting's value is changed.

Erase All Information on Disk

Note: Due to the lengthy amount of time required to wipe the entire hard disk, a wipe should not be initiated unless it is absolutely unavoidable or unless the device can remain offline for several hours without inconveniencing users. A disk wipe should not be initiated if the hard disk contains downloaded fonts, macros, or held jobs that should not be erased.

To erase all information on disk:

1. Navigate to **Erase All Information on Disk**.
2. Select a disk wipe method:
   - Single Pass Erase—Initiates a one-time, immediate single pass wipe of the entire hard disk.
   - Multiple Pass Erase—Initiates a one-time, immediate multiple pass wipe of the entire hard disk.

Wipe All Settings

This setting makes any sensitive information that may exist on the printer's volatile or non-volatile storage completely indecipherable.

To wipe all settings:

1. Navigate to **Wipe All Settings**.
2. `Erase all information on the hard disk? This will erase all settings, solutions, and jobs on this device` appears. Touch **Yes** to continue, or touch **No** to return to the Configuration Menu.

Font Sharpening

This setting is used to set a text point size value below which the high frequency screens will be used when printing data. This setting affects only PCL, PostScript, and PDF emulators.

Settings are in the range of 0–150 (24 is the default). For example, if the value is set to 24, then all fonts sized 24 points or less use the high frequency screens.

To change this setting:

1. Navigate to **Font Sharpening**.
2. Touch the **Keypad** icon.
3. Enter the setting.
4. Touch **Submit** to save the setting, or touch **Back** to return to the Font Sharpening Menu.

Pel Blurring

The Pel Blurring setting is used if step artifacts are noticed by the customer on copies and scans. When set to On, Pel Blurring smooths out the artifacts to produce a higher quality image.

To change this setting:

1. Navigate to **Pel Blurring**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Require Standby

This setting determines if the Standby Mode is On or Off. The default is On.

To change this setting:

1. Navigate to **Require Standby**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

If Standby Mode is on, the printer begins functioning in Standby Mode when it remains idle for an amount of time. The Standby Mode enables the printer:

- To consume less energy than when operating in normal mode but not as little as when operating in Power Saver
- To return to the Ready state more quickly than when operating in Power Saver

UI Automation

When enabled, this setting allows external developers to measure the stability of their applications by performing their own automated testing against the device.

To change this setting:

1. Navigate to **UI Automation**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Key Repeat Initial Delay

When a key is touched repeatedly, this is the delay before the key begins repeating. The range is 0.25–5 seconds, with increments of 0.25. The default is value is 1 second.

To adjust this setting:

1. Navigate to **Key Repeat Initial Delay**.
2. Touch ◄ or ► to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Key Repeat Rate

This is the number of presses per second for a repeating key. The range is 0.5–100, with increments of 0.5. The default value is 15 times per second.

To change this setting:

1. Navigate to **Key Repeat Rate**.
2. Touch ◄ or ► to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Clear Custom Status

Executing this operation erases any strings that have been defined by the user for the default or alternate custom messages.

To clear custom status:

1. Navigate to **Clear Custom Status**.
2. Touch **Clear Custom Status**.
3. `Clear Custom Status` appears, and the display returns to the Clear Custom Status menu.

Pel Blurring

This setting enables customers who notice step artifacts in their error diffused copies to activate the pel synthesis function.

To change this setting:

1. Navigate to **Pel Blurring**.
2. Touch ◄ or ► to adjust the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

USB Speed

This setting is used to set the throughput of the USB port on the printer. The settings are Auto, which is the default, and Full. Full forces the USB port to run at full speed and also disables its high-speed capabilities.

To change this setting:

1. Navigate to **USB Speed**.
2. Touch ◄ or ► to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

USB PnP

This setting is used to improve the MFP's compatibility with the host PC.

Note: Some PCs contain chipsets that may be incompatible with this MFP.

To change this setting:

1. Navigate to **USB PnP**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Automatically Display Error Screens

To change this setting:

1. Navigate to **Automatically Display Error Screens**.
2. Touch or to change the setting.
3. Touch **Submit** to save the setting, or touch **Back** to return to the Configuration Menu without saving any changes.

Exit Config Menu

This setting appears as a button on the bottom right-hand corner of the display and is always accessible from the Configuration Menu.

Touch this to exit the Configuration Menu. The printer performs a POR and starts in normal mode.

SE Menu

Note: This is not the Fax SE menu. To enter the Fax SE menu, press **411 from the Ready screen.

Note: This menu should be used as directed by next level of support.

Print Se Menus

GENERAL

Copyright—Displays copyright information
Optra Forms mode—On or off

CODE

Network Code Level—Displays network code level
Network Compile Info—Displays compile information
Printer Code Level—Displays printer code information
Printer Compile Info—Displays compile information

HISTORY

Print History
Mark History
History Mode

MAC

Set Card Speed
LAA
Keep Alive

NVRAM

Dump NVRAM
Reinit NVRAM

NPAP

Print Alerts

TCP/IP

netstat -r
arp -a
Allow SNMP Set
MTU
Meditech Mode
Raw LPR Mode
Gather Debug
Enable Debug

Invalid engine code mode

Backing up eSF applications and settings

The RIP board contains default and custom eSF applications and settings. These are not contained in the NVRAM or in the hard drive, therefore, a RIP board failure could result in loss of these applications and settings if they are not backed up. When a new RIP board is installed, the Lexmark default eSF applications and settings are loaded.

The best practice is for an administrator to have their eSF applications and settings backed up prior to encountering a problem. If this hasn't been done, an attempt to back up the data should be performed before replacing the RIP Board.

To back up the eSF applications and settings:

1. POR the device into invalid engine code mode. See **"Menu key combinations" on page 3-5**.
2. Access the device's Web page from a web browser.
3. From the Web page, navigate to:
   Settings > Solutions > Embedded Solutions > select the application **> Export**.
   Note: Don't click **Import/Export** to back up the eSF applications and settings. There is a size limit of 128kb on the export file. Customers with a large number of applications or settings may exceed the file size limit and have information truncated in the exported file.
4. Once the new RIP board is installed, repeat steps 1—2, and navigate to:
   Settings > Solutions > Embedded Solutions > select the .ucf file **> Import**.

Paper jams

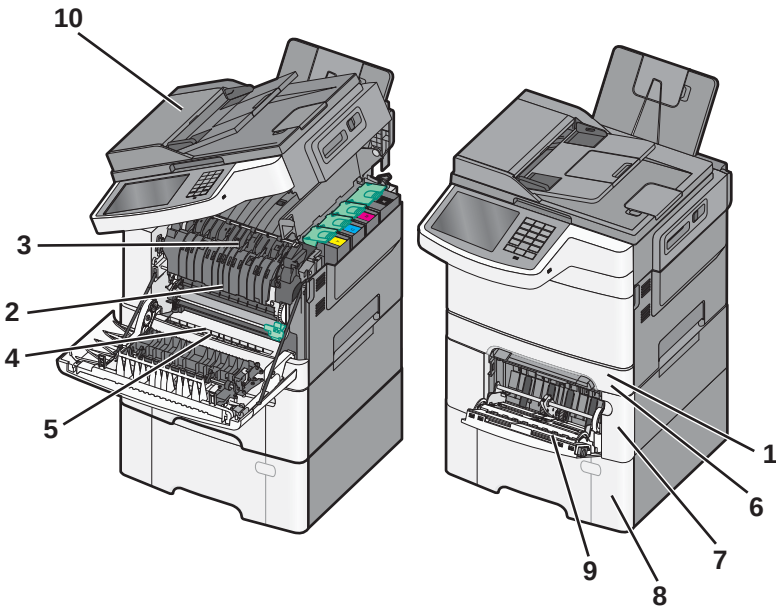
Avoiding jams

The following hints can help you avoid jams:

- Use only recommended paper or specialty media.
  For more information, see the *Card Stock & Label Guide* available on the Lexmark Web site at **www.lexmark.com/publications**.
- Do not load too much paper. Make sure the stack height does not exceed the indicated maximum height.
- Do not load wrinkled, creased, damp, or curled paper.
- Flex, fan, and straighten paper before loading it.
- Do not use paper that has been cut or trimmed by hand.
- Do not mix paper sizes, weights, or types in the same stack.
- Store the paper in an appropriate environment.
- Do not remove trays while the printer is printing. Wait for `Load tray <x>` or `Ready` to appear before removing a tray.
- Do not load the manual feeder while the printer is printing. Wait for `Load Manual feeder with <x>` to appear.
- Push all trays in firmly after loading paper.
- Make sure the guides in the trays are properly positioned, and are not pressing too tightly against the paper.
- Make sure all paper sizes and paper types are set correctly in the operator panel menu.
- Make sure all printer cables are attached correctly.

Understanding jam numbers and locations

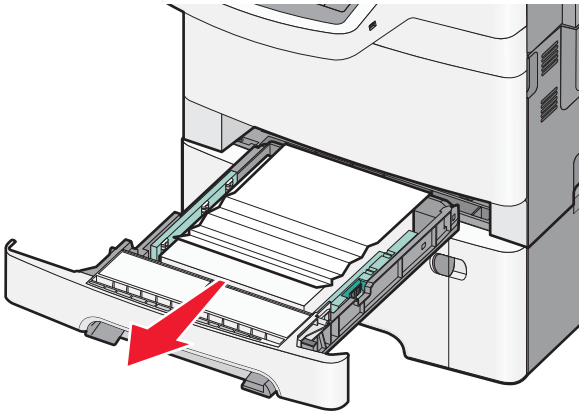
When a jam occurs, a message indicating the jam location appears. The following illustration and table list the paper jams that can occur and the location of each jam. Open doors and covers, and remove trays to access jam locations.



	Jam number	Jam location	Instructions
1	200	In the standard 250-sheet tray and manual feeder (Tray 1)	See **“200 paper jam” on page 3-47**.
2	201	Under the fuser	See **“201 paper jam” on page 3-48**.
3	202	In the fuser	See **“202 paper jam” on page 3-49**.
4	230	In the duplex unit	See **“230 paper jam” on page 3-50**.
5	235	In the duplex unit **Note:** This jam number indicates that the paper being used for a duplex print job is not supported.	See **“235 paper jam” on page 3-50**.
6	241	In the standard 250-sheet tray and manual feeder (Tray 1)	See **“241 paper jam” on page 3-51**.
7	242	In the 650-sheet duo drawer (Tray 2)	See **“242, 243 paper jam” on page 3-52**.
8	243	In the 550-sheet tray (Tray 3)	See **“242, 243 paper jam” on page 3-52**.
9	250	In the multipurpose feeder	See **“250 paper jam” on page 3-52**.
10	29x	In the ADF	See **“290–294 ADF paper jams” on page 3-53**. See **“291.xx ADF paper jams” on page 3-54**.

200 paper jam

1. Pull out the standard 250-sheet tray (Tray 1).
2. Grasp the jammed paper on each side, and gently pull it out.
   Note: Make sure all paper fragments are removed.

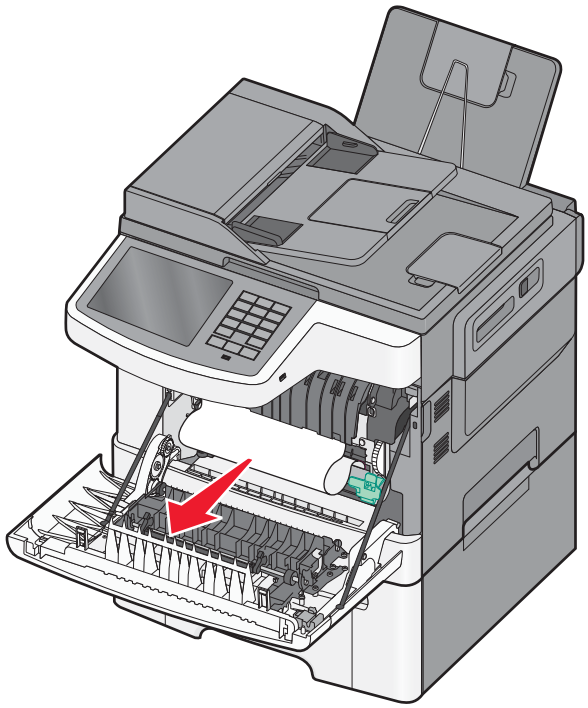


3. Insert the tray.
4. From the printer display, touch **Continue, jam cleared**.

201 paper jam

	CAUTION—HOT SURFACE: The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

1. Open the front cover.
2. Grasp the jammed paper on each side, and gently pull it out.



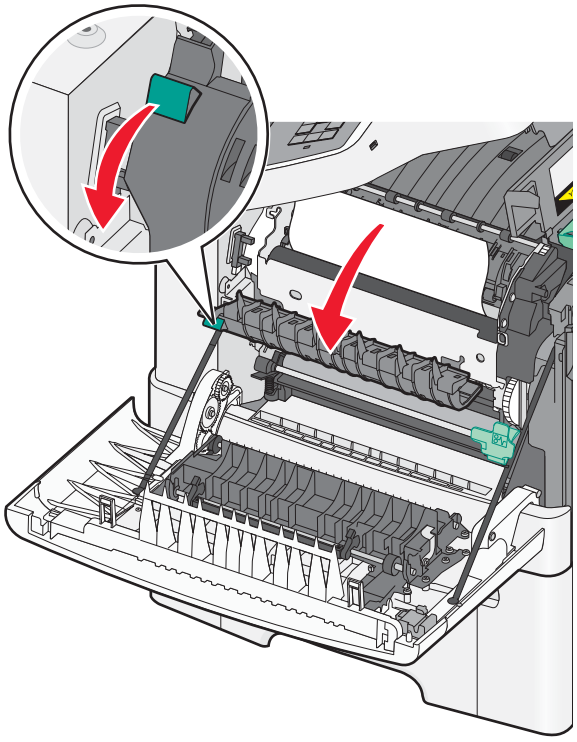
Note:
- Make sure all paper fragments are removed.
- There may be a second sheet jammed if `200.xx Paper Jam` and `202.xx Paper Jam` appear.

3. Close the front door.
4. From the printer display, touch **Continue, jam cleared**.

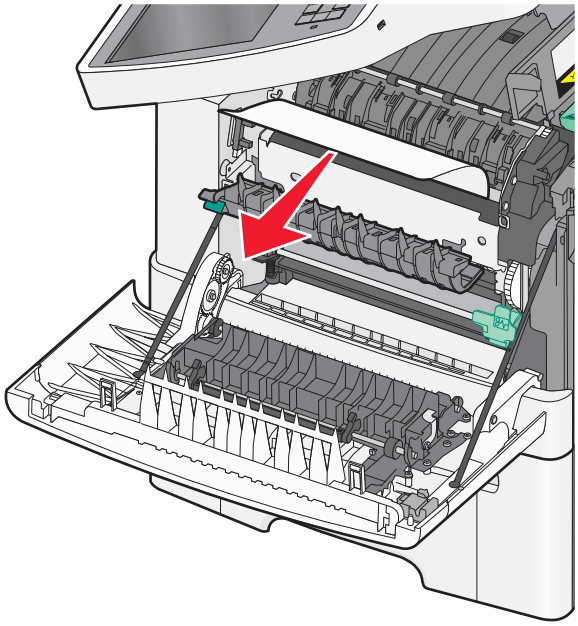
202 paper jam

	CAUTION The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

1. Raise the scanner assembly to the up position.
2. Open the front cover.
3. Grasp the green lever, and pull the fuser cover.



4. Hold the fuser cover down, and remove the jam.
   Note:
   - Make sure all paper fragments are removed.
   - The fuser cover closes when released.



5. Close the fuser cover.
6. Close the front door.
7. From the printer display, touch **Continue, jam cleared**.

230 paper jam

1. Open the front cover.
2. Grasp the jammed paper on each side, and gently pull it out.
   Note: Make sure all paper fragments are removed.
3. From the printer display, touch **Continue, jam cleared**.

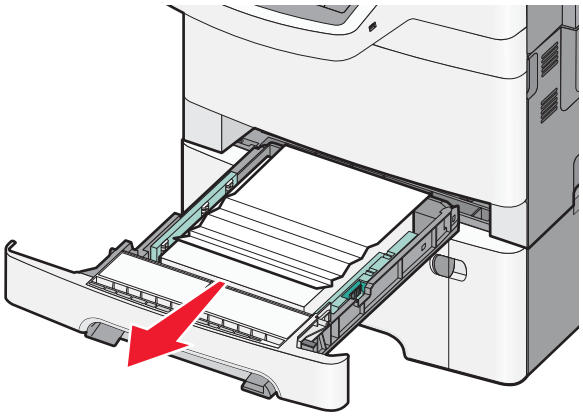
235 paper jam

This jam occurs when the paper is too short for the duplex unit.

1. Open the front cover.
2. Grasp the jammed paper on each side, and then gently pull it out.
   Note: Make sure all paper fragments are removed.
3. Load the tray with the correct paper size.
4. Insert the tray.
5. Close the front door.
6. From the printer display, touch **Continue, jam cleared**.

241 paper jam

1. Pull out the standard 250-sheet tray (Tray 1).
2. Grasp the jammed paper on each side, and gently pull it out.
   Note: Make sure all paper fragments are removed.

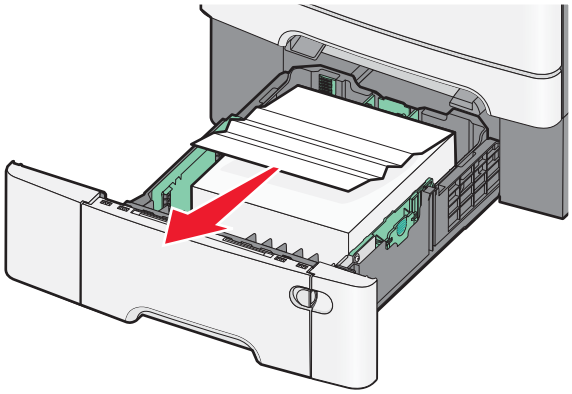


3. Insert the tray.
4. From the printer display, touch **Continue, jam cleared**.

242, 243 paper jam

Note: Since the 650-sheet duo drawer and 550-sheet tray are similar in function, only the procedure for clearing the 650-sheet duo drawer is shown.

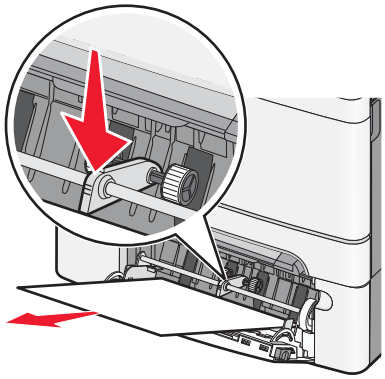
1. Pull out the 650-sheet duo drawer (Tray 2) or the 550-sheet tray (Tray 3).
2. Grasp the jammed paper on each side, and then gently pull it out.
   Note: Make sure all paper fragments are removed.



3. Align the tray, and insert it.
4. From the printer display, touch **Continue, jam cleared**.

250 paper jam

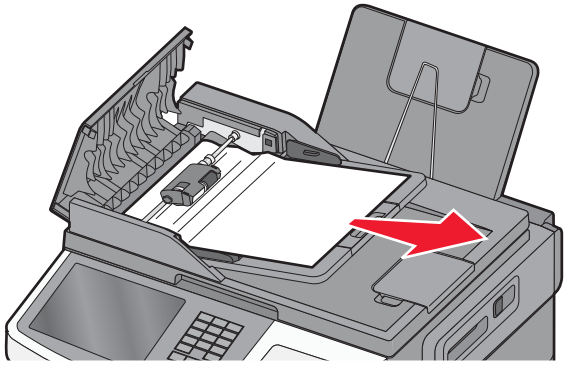
1. Remove all paper from the multipurpose feeder.
2. Push the lever in the multipurpose feeder to access the jammed paper.
   Note: Make sure all paper fragments are removed.



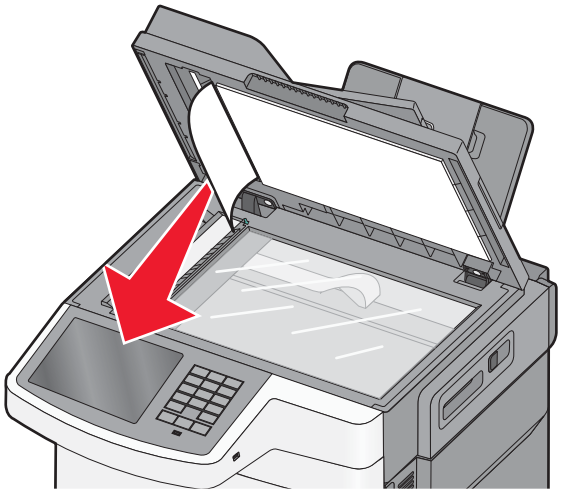
3. From the printer display, touch **Continue, jam cleared**.

290–294 ADF paper jams

1. Remove all original documents from the ADF input tray.
2. Open the ADF cover. Remove the jammed paper.



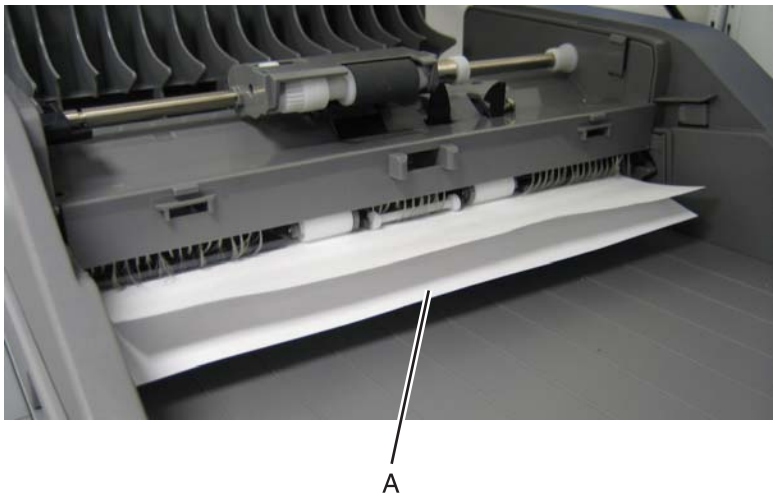
3. Close the ADF cover.
4. Open the flatbed cover. Remove any jammed pages.
   Note: Make sure all paper fragments are removed.



5. Close the scanner lid.
6. From the printer display, touch **Continue, jam cleared**.

291.xx ADF paper jams

1. Remove all original documents from the ADF input tray.
2. Remove the ADF input tray. See **“ADF input tray removal” on page 4-88**.
3. Remove the original from the ADF by pulling the lower of the two sheets (A) from the ADF exit.



4. Replace the ADF input tray.
5. From the printer display, touch **Continue, jam cleared**.

Updating printer firmware

The latest firmware can be found by going to **http://support.lexmark.com/printerfirmware** and inputting keycode x54x (all lowercase).

Before performing a firmware update on the printer, contact the technical service center or second level of support to verify the correct firmware and keycode. The wrong firmware or wrong level of firmware could lead to a malfunction or render the printer inoperable.

Theory of operation

Print engine theory

Electrophotographic process (EP process)

The method that all laser and LED printers use to print is called the electrophotographic process. These machines use differences in charge to manipulate and move toner from the toner cartridge to the printed page.

Even though the basic EP process is the same for every laser and LED printer, the specifics for each printer are different. We will discuss the X54x series print engine and its particular method of printing.

MFP electrophotographic process basics

These MFPs are single-laser MFPs that use four toner cartridges (cyan, yellow, magenta, and black) to create text and images on media.

The MFP has four photoconductors (called a photodeveloper cartridge or PC unit) and an image transfer unit (ITU). Each color toner is painted to its respective photoconductor at the same time. The transfer belt passes under the four photoconductors and the four-color image is produced and transferred to the media in one pass.

During the printing process, the MFP follows the six basic EP Process steps to create its output to the page. These six steps are:

1. Charge the photoconductor (PC unit).
2. Expose the photoconductor (PC unit) with the laser.
3. Develop toner on the photoconductor (PC unit).
4. First transfer to the ITU, and second transfer to the media.
5. Fuse the toner to the media.
6. Clean/erase the photoconductor and the ITU.

In summary, the printer's RIP board receives print data and the command to print. The RIP board then initiates the print process. The RIP board is the command center for the EP process and coordinates the various motors and signals.

The high-voltage power supply sends charge to various components in the EP process. The laser fires on the photoconductors and alters the surface charge relative to the planed image for each photoconductor. Each photoconductor rotates past its respective developer roll, and toner is developed on the surface of each photoconductor. The four separate color images are then transferred to the transfer belt on the ITU as it passes under the photoconductors. After the image is transferred to the transfer belt, the photoconductors are cleaned and recharged.

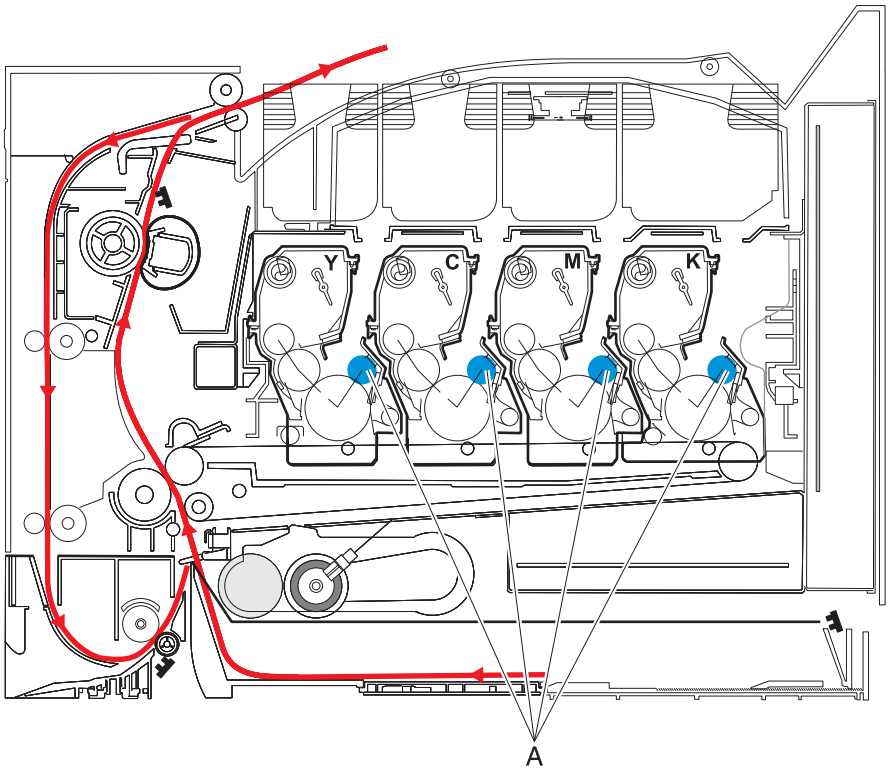
The transfer belt carries the four-colored image towards the transfer roll. Media is picked up from the tray and carried to the transfer roll where the image is transferred from the transfer belt to the media. The timing of the paper pick is determined by the speed of the transfer belt.

The media is carried to the fuser rollers where heat and pressure are applied to the page to permanently bond the toner to the page. The fuser rollers push the media into the output bin. The transfer unit is cleaned and the process begins again for the next page.

Step 1: Charge

During the charge step, voltage is sent from the high-voltage power supply to the charge roller (A) beside each of the four photoconductors. The charge roller is part of the photoconductor unit.

The charge roller (A) puts a uniform negative charge over the entire surface of the photoconductor to prepare it for the laser beam.



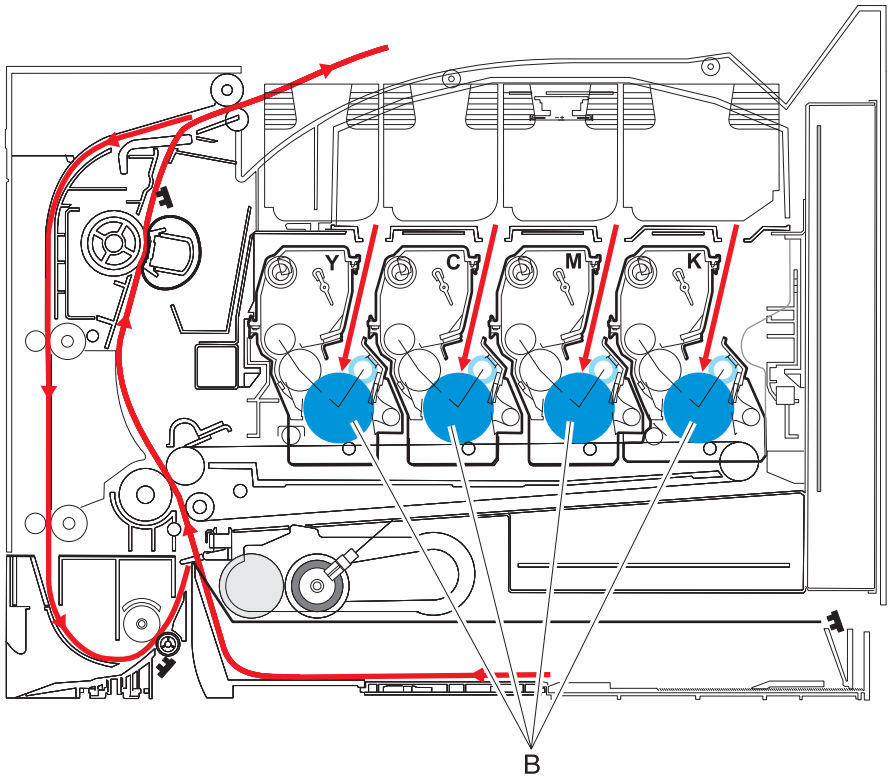
Service tips

- If the surface of the charge roller is damaged (such as a nick or pit), it will cause the charge to be uneven on the photoconductor. This will cause a repeating mark on the printed page. Check the service manual for the repeating marks table.
- If the charge roller is severely damaged, the surface of the photoconductor will not be charged properly, and heavy amounts of toner will be deposited on the photoconductor. This will cause the printed page to be saturated with 100% of each color. The imaging basket will need to be replaced sooner.

Step 2: Expose

During the expose step, the laser fires a focused beam of light at the surface of each photoconductor (B) and writes an invisible image called a latent image or electrostatic image for each color.

The laser beam actually discharges the surface only where the beam hits the photoconductor. This creates a difference in charge potential between the exposed area and the rest of the photoconductor surface.



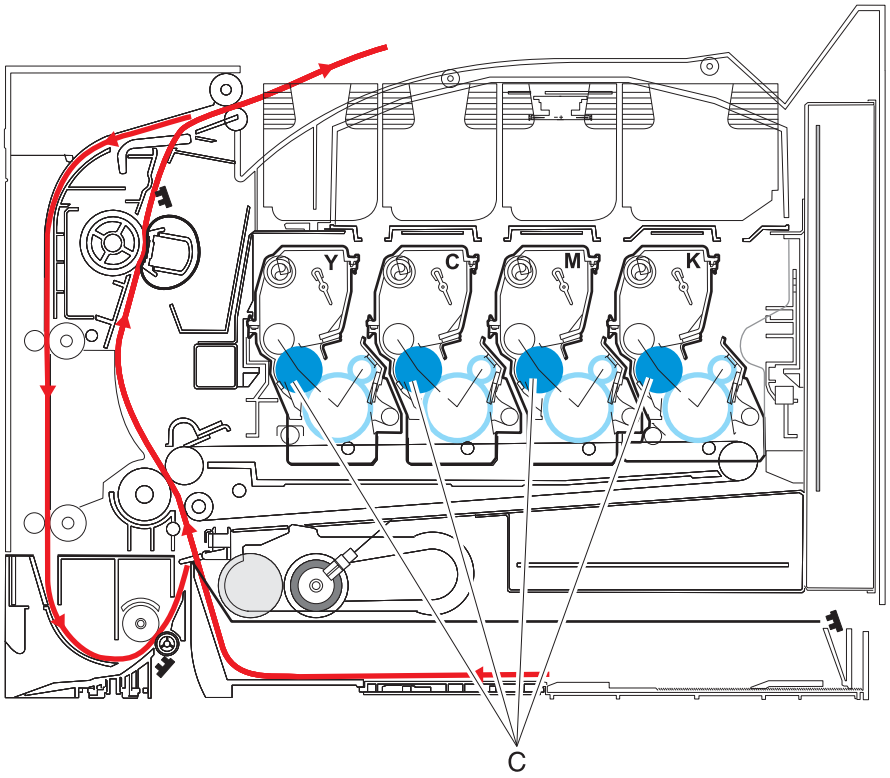
Service tips

- The laser beam passes through a glass lens as it exits the laser unit. If this lens gets contaminated with toner or other debris, it will cause vertical streaking of white/lightness on the page. Cleaning the lens will solve the problem.
- Never touch the surface of the photoconductor with your bare hand. The oil from your skin may cause a charge differential on the surface, and toner will not stick properly. The result would be repeating blotches of voids/light print on a page. Then the photoconductor will have to be replaced.
- The surface of the photoconductor is coated with an organic substance that makes it sensitive to light. Be sure and cover the photoconductor when you are working on the printer so you don't "burn" it. If exposed to light for too long, it will cause light/dark print quality problems and have to be replaced.

Step 3: Develop

Once the laser exposes the photoconductor, the high-voltage power supply sends charge to the developer roll (C). For each color, the toner cartridge engages the photoconductor so it is in contact with the surface. Because of the charge difference between the toner on the developer roller and the electrostatic image created by the laser, the toner will attract to the photoconductor only where the laser exposed the surface.

This process would be similar to using glue to write on a can and then rolling it over glitter. The glitter sticks to the glue but won't stick to the rest of the can.



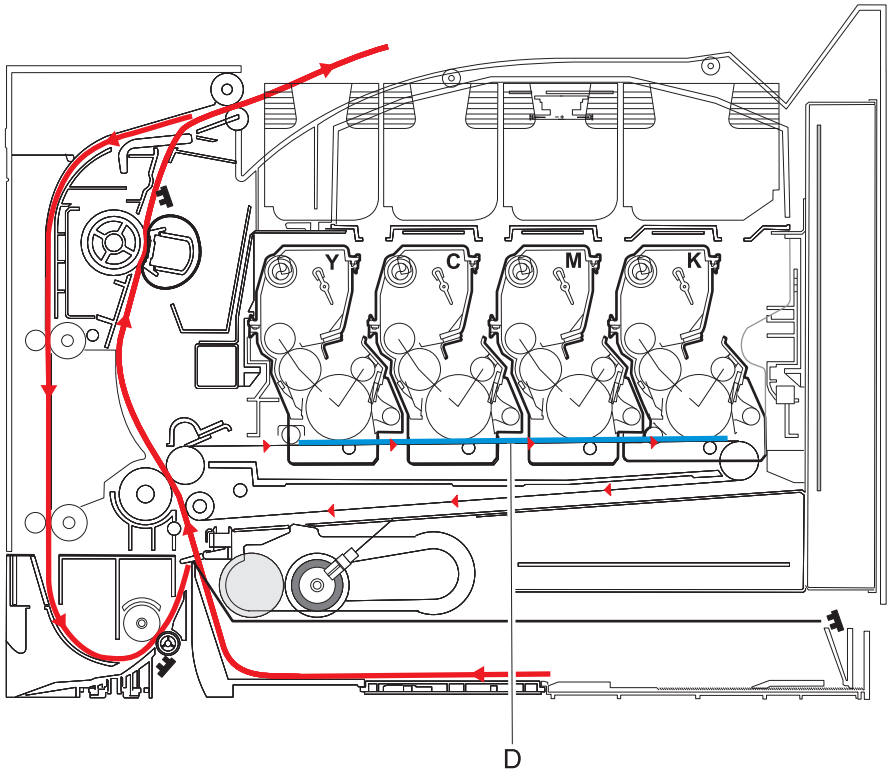
Service tips

- Never touch the surface of the developer roller with your bare hand. The oil from your skin may cause a charge differential on the surface, and toner will not stick properly. The result would be repeating blotches of voids/light print on a page. Then the affected cartridge will have to be replaced.
- If the developer roller is damaged, it will not contact the surface of the photoconductor properly. The result could be repeating marks, thin vertical voids, or thin vertical lines of color on the printed page. Check the surface of the developer for damage.

Step 4a: First transfer

When the latent images are developed on each Photoconductor, the high-voltage power supply sends voltage to the 1st Transfer Rollers inside the ITU (D).

The charge difference between the developed toner image on the Photoconductor surface and the 1st Transfer Roller causes the images to transfer to the surface of the ITU belt for each color. This takes place by a direct surface-to-surface contact between the Photoconductors and the ITU belt.



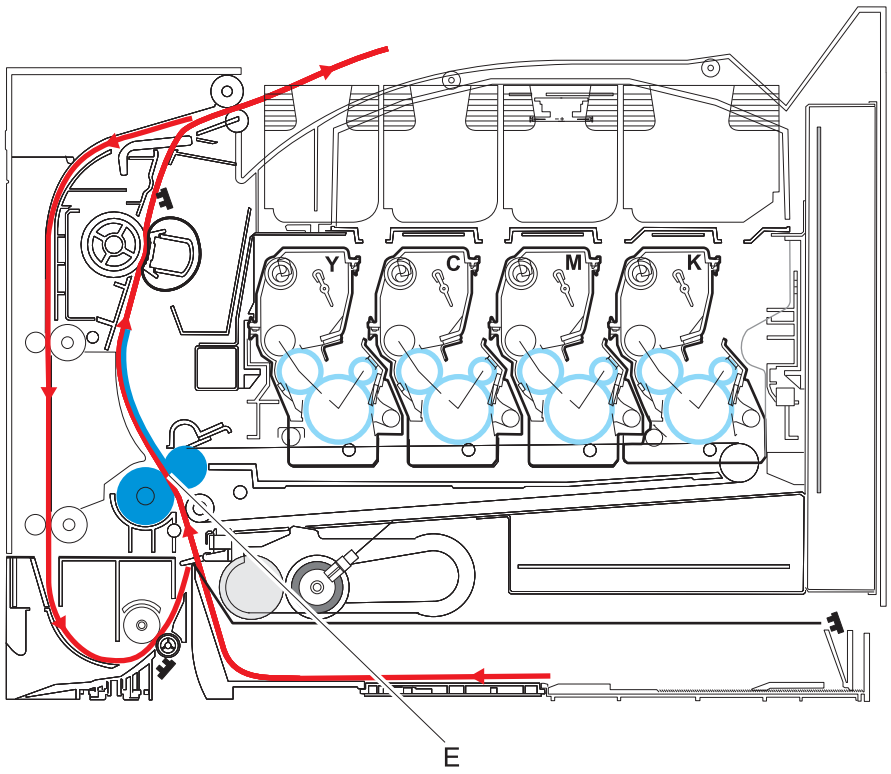
Service tips

- Never touch the surface of the ITU belt with your bare hand. The oil from your skin will cause a charge differential on the surface, and toner will not stick properly. The result would be repeating blotches of voids/light print on a page. Then the ITU belt will have to be replaced.
- Don’t use solvents or other cleaners to clean the ITU belt surface. No matter how careful you are, the surface will be compromised, causing scratches or a charge differential that will produce a void or light blotch on the printed page. Then the ITU belt will need to be replaced.

Step 4b: Second transfer

Once the four planes of color are transferred to the transfer belt from the photoconductors, the image is carried towards the transfer roll (E). This transfer roll is also part of the ITU. Based on the speed of the transfer belt, the proper time to send the signal to pick the media from an input source is determined. The timing of the pick is such that the media reaches the point where the transfer belt and transfer roll meet. The paper passes between the transfer belt and transfer roll when the image on the belt reaches the second transfer area.

The high-voltage power supply sends voltage to the transfer roll (E) to create a positive charge. Once the image on the transfer belt reaches the transfer roll, the negatively charged toner clings to the media and the entire image is transferred from the transfer belt to the media.



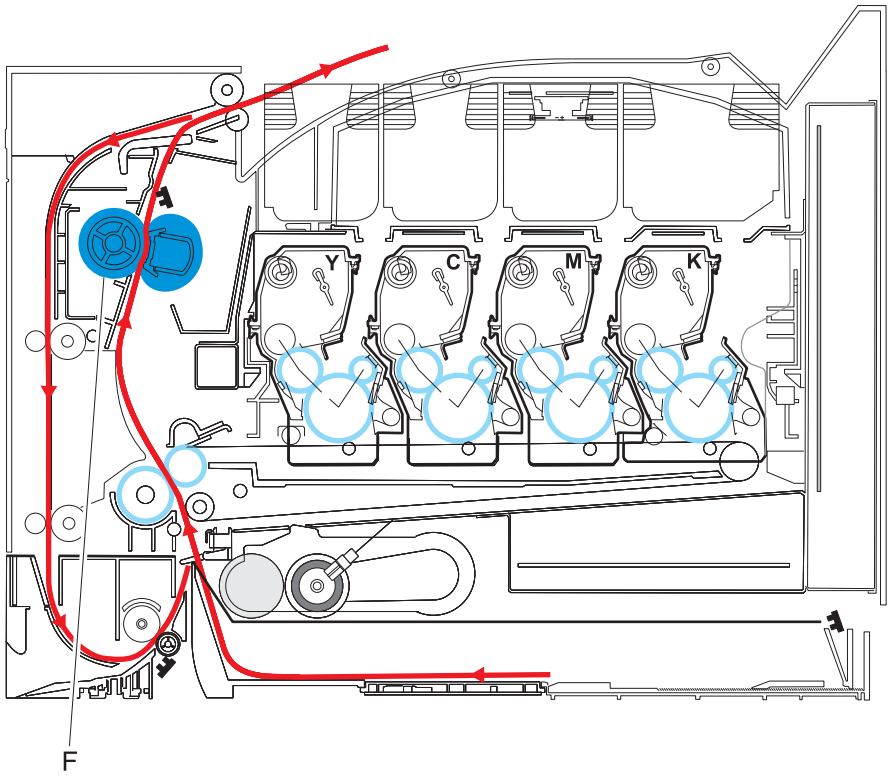
Service tips

- If the transfer roller has nicks, pits, or flat spots on it, the surface doesn't come into contact with the media and transfer unit properly. This will cause voids or light spots on the page or repeating voids/ light areas, because the toner can't be fully transferred due to the charge difference in the areas of damage.
- If the transfer roller does not engage the transfer unit, or does not have voltage coming from the high-voltage power supply, the toner will not fully transfer from the transfer unit; the entire page will be very light or blank. Any toner that does transfer will be due to a "contact" transfer instead of a "charge" transfer. Check the high-voltage power supply contacts to the transfer roller.

Step 5: Fuse

Once the image has been fully transferred to the media, the transfer roll helps move the paper into the fuser area.

The fuser (F) applies heat and pressure to the page to melt the tiny toner particles and bond them permanently to the media. The fuser moves the paper to the redrive rolls which move the paper to the output bin.



Service tips

- If the fuser rollers are damaged, they can cause toner to be pulled off the page or cause paper jams.
- Toner that rubs off a printed page can be a sign of a malfunctioning fuser or an improper media setting. Always check the paper type setting before replacing the fuser. A common mistake is to print on heavier media (such as card stock) with the paper type set to plain paper.
- When removing paper jams from the fuser, be sure to use the fuser release tabs to relieve the pressure on the page. In addition, never pull unfused toner through the fuser if you can help it; try to back the jammed page out of the fuser in the opposite direction it was traveling.

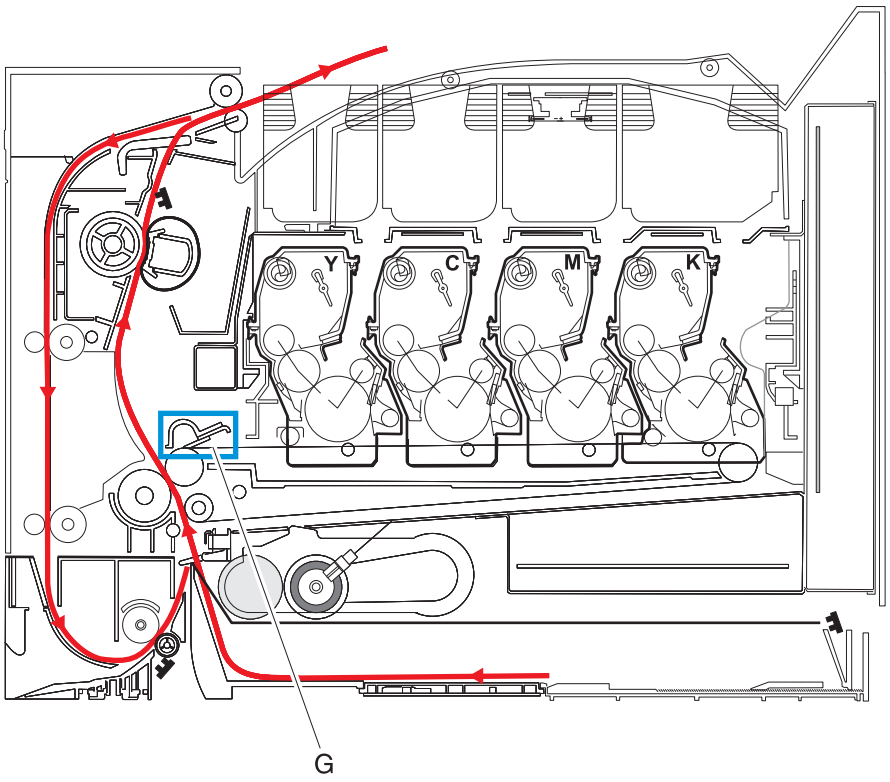
Step 6: Clean/Erase

There are two main cleaning processes that take place during the EP Process. One process cleans the transfer belt, and the other cleans the photoconductors.

Transfer Unit Clean

Once the toner image on the transfer belt has been transferred to the page, the transfer belt rotates around and is cleaned by the cleaning blade (G). This occurs for every page that is printed.

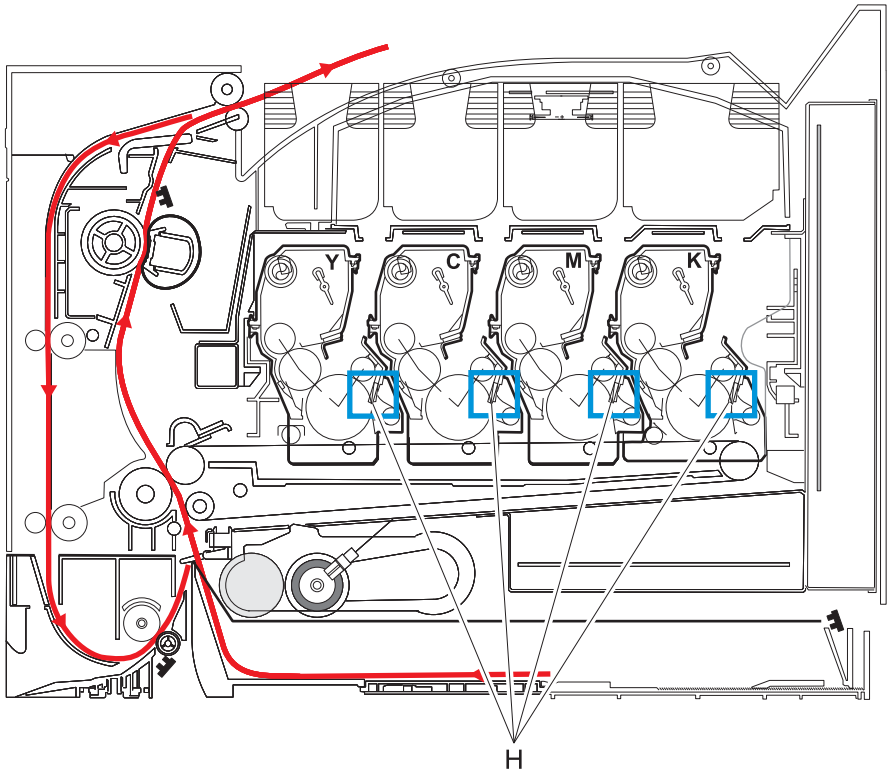
After the toner is moved to the cleaning blade, the toner is moved from the cleaning blade (G) to the waste toner area using an auger system.



Photoconductor Clean/Erase

After each plane of color has been transferred to the transfer belt from the photoconductors, a cleaning blade (H) scrapes the remaining toner from the surface of each photoconductor. This is the clean/erase process.

Now the photoconductor surface is prepared to begin the EP cycle once again. This cleaning/erasing cycle happens after each plane of color is transferred to the transfer belt.



Paper path transport components

In order for an image to be printed, the media has to be moved from an input source (such as a tray) into the printer and eventually exit into an output source.

The most important component in this process is this media itself. Old, damaged, or out-of-specification media can and will cause feed and transport problems. If you encounter problems, you should always check the media first **“Media guidelines” on page 1-13**. In addition, it is always good practice to check the printer and driver settings to see if the media being used matches the user’s settings. It is not uncommon to find a user printing on cardstock with the printer programmed to print on a plain paper setting.

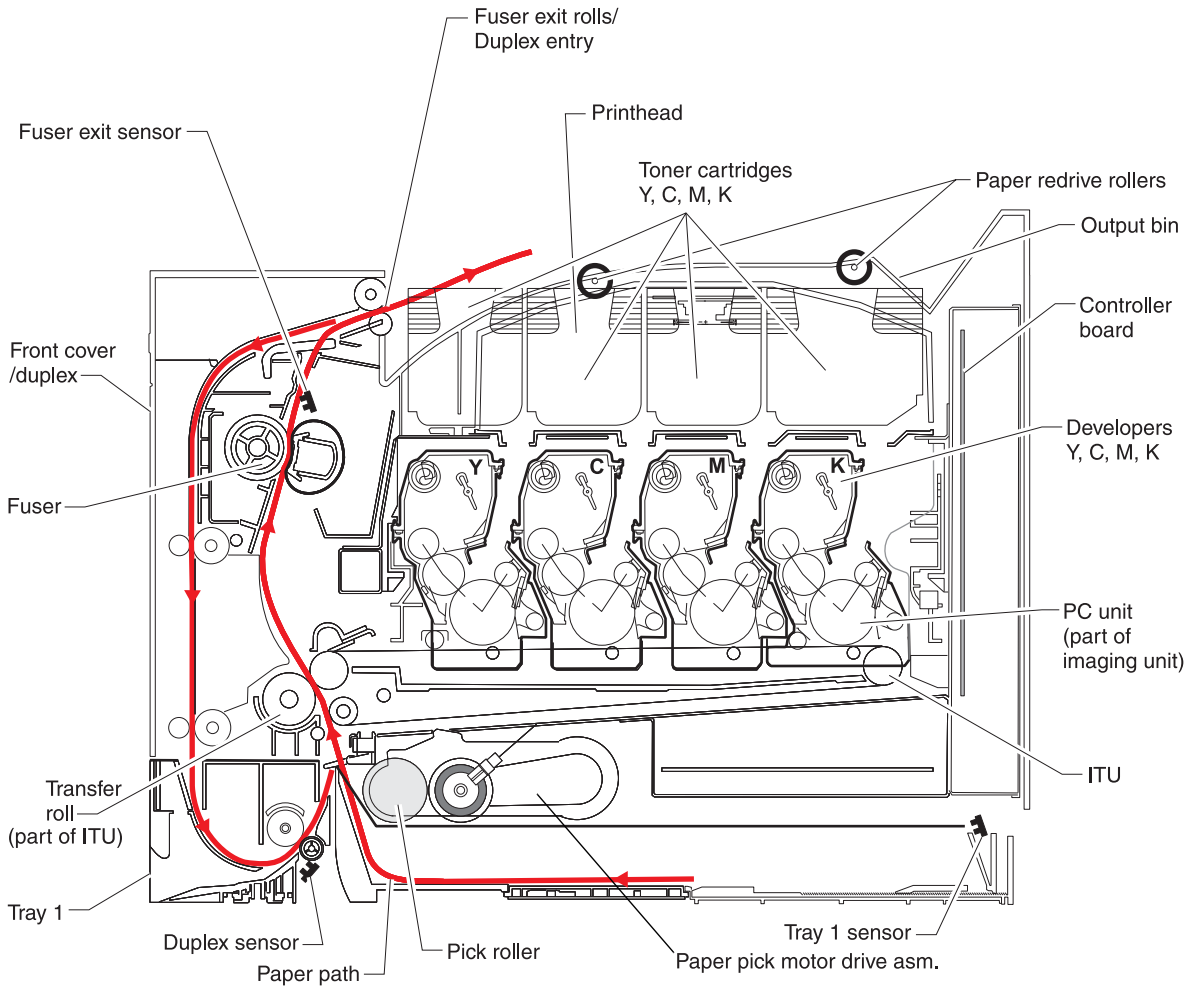
The printer’s feed and transport components can fail and cause paper jams or other feed and transport problems. These components should be examined for damage or wear and replaced if necessary.

Below is a summary of the paper path, and transport components.

Paper path Information

The MFP has a simple “C” shaped paper path. The paper paths are shown in red. Paper is fed from the bottom of the printer from the paper tray, or manual feed, and travels upward through the front cover.

There is a duplex unit on this MFP. The duplex unit is built into the front cover and drawer 1. Duplexing is described later.



Transport components

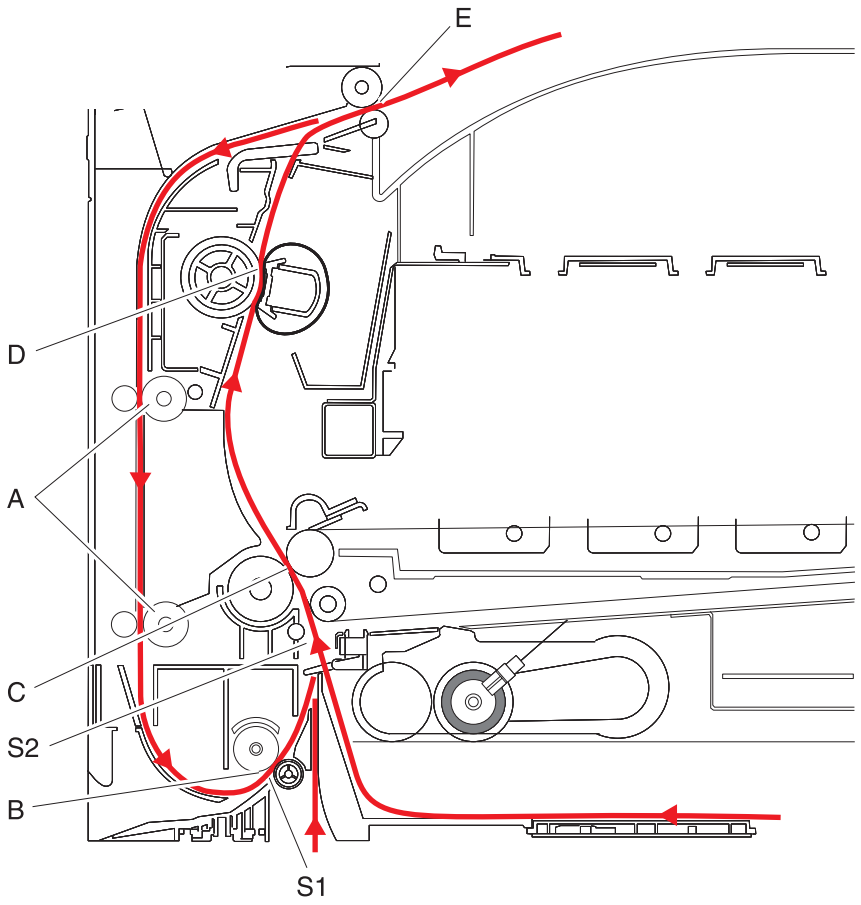
In summary, the media is fed from the tray into the printer by a feed roll and carried to the transfer roll (ITU). The pick rollers time the media to enter the EP process at just the right moment.

The pick rollers push the media to the ITU where the image is transferred to the page.

The transfer roller moves the media to the fuser where heat and pressure are applied to the page. The fuser rollers push the media toward the exit bin and past the exit sensor. The exit rollers guide the paper into the output bin.

Note: If the printer posts a paper jam message but no paper is found, paper dust or paper particles may have fallen in one of the sensor eyes. Use a can of compressed air to gently clean the sensor.

Duplexing (models with duplex support only)



The MFPs with duplex support use a secondary paper path in the front cover and the 250-sheet paper tray to print on the second side of a sheet of paper. The following steps summarize the duplexing process.

After the first side of the media is printed and the trailing edge of the paper clears the fuser exit sensor, the fuser motor reverses. The reversed motor pulls the media into the duplexer paper path. In addition to the fuser motor reversing, the pick motor also reverses. The pick motor drives the duplex aligner rolls (A) which push the media down to the bottom turnaround in the paper tray and gate aligner (B).

Note: While the sheet is being transported through the front door and paper tray, it is the only piece of media being processed by the print engine. A user should not attempt to insert a piece of media into the manual paper feed while a duplex job is being processed. This would invoke a paper jam error.

When the trailing edge of the media clears the fuser, the fuser engine rotates forward to prepare the fuser for the page travelling through the duplexer.

As the media reaches the gate aligner, a sensor (S1) is triggered indicating the presence of the leading edge.

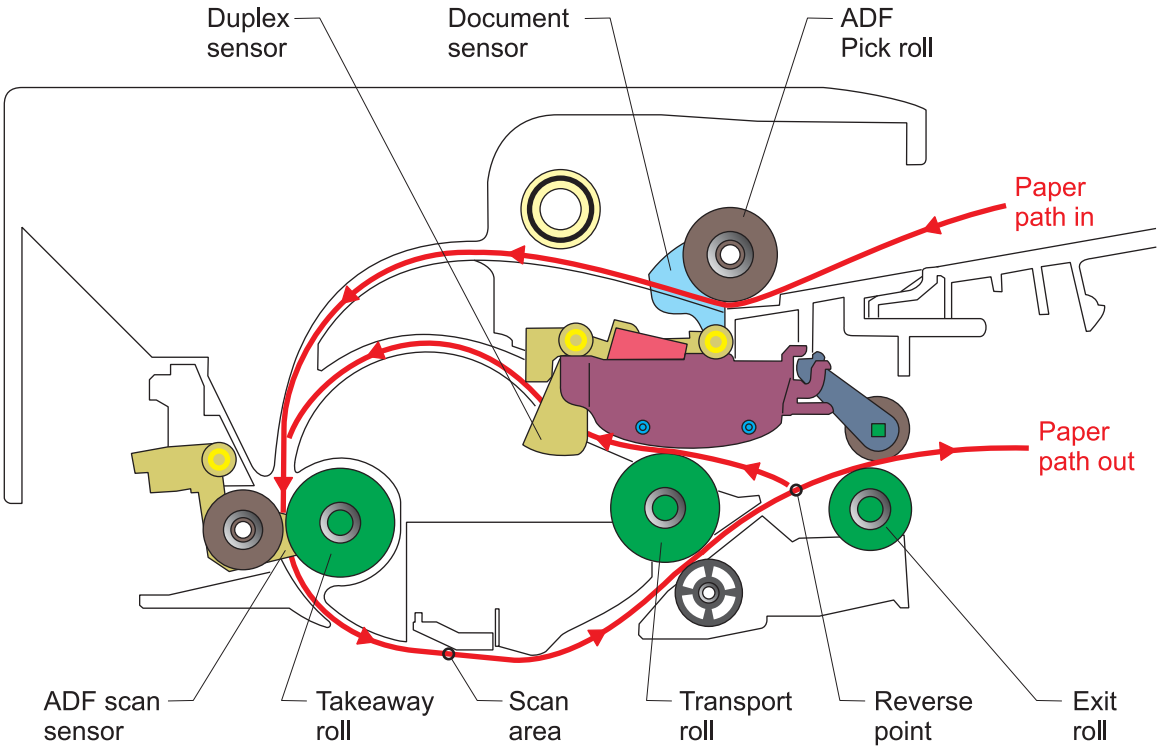
When the S1 sensor is triggered, the paper continues to the S2 sensor. When the S2 signal is detected, the speed of the paper is adjusted to accommodate the speed of the transfer belt, ensuring the proper registration of the image on the media. The paper travels to the ITU (C) and the second image is transferred to the reverse side of the media.

Once the imaged is transferred, the media travels to the fuser (D), the fuser exit rolls (E), and the output bin.

Scanner theory

Duplex ADF

The following illustration shows the paperpath, rollers and sensors used in the X548 duplex ADF.



The X548 duplex ADF enables the user to create duplex scans automatically, eliminating the need to stop the scanning process to flip the media being duplicated over. The ADF uses a step motor, and a series of sensors to determine the media's position in the paper path during the scan process.

The following steps are performed in creating a duplex scan on the X548 duplex ADF.

1. The scanner control unit, on the RIP board receives a command to create a scan, fax, or copy.
2. A signal is sent to the ADF to poll the paper present sensor to check if the media to be scanned is in the correct position. The media must be placed in the ADF input tray so it actuates the paper present sensor. If the ADF paper present sensor isn't actuated, a flatbed scan is run by default.
3. If the media has actuated the paper present sensor, an ADF scan is executed. At this point the roller on the pick arm assembly drops and advances the paper into the ADF, actuating the document sensor. Actuating this sensor determines that this will be the first side of the document to be scanned.

4. When the document sensor is actuated, a signal is sent to flatbed to move the CCD imaging unit to the ADF scan area. When the CCD reaches the ADF scan area, a calibration is performed on the CCD.
5. The media is advanced to ADF scan sensor which is located by the takeaway roll. If the paper does not reach the ADF scan sensor in a predetermined length of time a jam error will be generated.
6. When the ADF scan sensor is actuated the paper advances to the scan area. While the paper is advancing to the scan area, the ADF motor generates pulses which are stored in an on-board counter. These counts along with the ADF scan sensor ensure that the media is travelling at the correct speed through the scan area. The speed the document travels through the ADF scan area is dependent on the image DPI specified by the user.
7. After a predetermined number of counts, the media reaches the scan area and the image acquisition process is initiated. While the image acquisition process is executing, the ADF scan sensor is being polled to determine if the trailing edge of the media has reached the sensor.
8. Once the trailing edge of the scan media has reached the ADF scan sensor, that sensor goes to the off position. After the ADF scan sensor is switched off, the image acquisition process continues for a predetermined length of time.
9. When the image acquisition process is completed, the trailing edge of the media continues to the reverse point. If the scan job is simplex, only the media continues to the exit roller and exits the ADF.
10. If the scan job is a duplex scan job, a solenoid on the ADF is actuated when the trailing edge of the media reaches the reverse point. This solenoid moves a diverter gate to the down position and engages a reversing gear on the exit roll.
11. The reversed exit roll pulls the paper back into the ADF. The transport roll then moves the media to the duplex sensor. When the duplex sensor is actuated, the exit roll stops. Also, the duplex sensor indicates that this is the second side of the media to be scanned.
12. After actuating the duplex sensor, the transport roll moves the media to the take away roll and the ADF scan sensor. Like the first pass of the media, the image acquisition process is repeated for the second side of the media.
13. When the trailing edge of the media reaches the reverse point the second time, the solenoid again moves the diverter gate to the down position and reverses the exit roll. The paper goes back into the ADF unit for a third time. The paper passes through the paper path, but no imaging occurs. This pass is to turn the paper over to the original side up. On the third pass of the media trailing edge over the reverse point, the solenoid is not actuated and the paper passes out of the ADF.

Color theory

What is RGB color?

Red, green, and blue light can be added together in various amounts to produce a large range of colors observed in nature. For example, red and green can be combined to create yellow. Televisions and computer monitors create colors in this manner. RGB color is a method of describing colors by indicating the amount of red, green, or blue needed to produce a certain color.

What is CMYK color?

Cyan, magenta, yellow, and black inks or toners can be printed in various amounts to produce a large range of colors observed in nature. For example, cyan and yellow can be combined to create green. Printing presses, inkjet printers, and color laser printers create colors in this manner. CMYK color is a method of describing colors by indicating the amount of cyan, magenta, yellow, and black needed to reproduce a particular color.

How is color specified in a document to be printed?

Software programs typically specify document color using RGB or CMYK color combinations. Additionally, they allow users to modify the color of each object in a document. For more information, see the software program Help topics.

How does the printer know what color to print?

When a user prints a document, information describing the type and color of each object is sent to the printer. The color information is passed through color conversion tables that translate the color into the appropriate amounts of cyan, magenta, yellow, and black toner needed to produce the desired color. The object information determines the application of color conversion tables. For example, it is possible to apply one type of color conversion table to text while applying a different color conversion table to photographic images.

Should I use PostScript or PCL emulation? What settings produce the best color?

The PostScript driver is strongly recommended for best color quality. The default settings in the PostScript driver provide the preferred color quality for the majority of printouts.

Why doesn't the printed color match the color I see on the computer screen?

The color conversion tables used in Auto Color Correction mode generally approximate the colors of a standard computer monitor. However, because of technology differences that exist between printers and monitors, there are many colors that can also be affected by monitor variations and lighting conditions. For recommendations on how the printer color sample pages may be useful in solving certain color-matching problems, see **“How can I match a particular color (such as a corporate logo)?” on page 3-69**.

The printed page appears tinted. Can I adjust the color?

Sometimes a printed page may appear tinted (for example, everything printed seems to be too red). This can be caused by environmental conditions, paper type, lighting conditions, or user preference. In these instances, adjust the Color Balance setting to create a more preferable color. Color Balance provides the user with the ability to make subtle adjustments to the amount of toner being used in each color plane. Selecting positive or negative values for cyan, magenta, yellow, and black (from the Color Balance menu) will slightly increase or decrease the amount of toner used for the chosen color. For example, if a printed page has a red tint, then decreasing both magenta and yellow could potentially improve the color balance.

My color transparencies seem dark when they are projected. Is there anything I can do to improve the color?

This problem most commonly occurs when projecting transparencies with reflective overhead projectors. To obtain the highest projected color quality, transmissive overhead projectors are recommended. If a reflective projector must be used, then adjusting the Toner Darkness setting to 1, 2, or 3 will lighten the transparency. Make sure to print on the recommended type of color transparencies.

What is manual color correction?

When manual color correction is enabled, the printer employs user-selected color conversion tables to process objects. However, Color Correction must be set to Manual, or no user-defined color conversion will be implemented. Manual color correction settings are specific to the type of object being printed (text, graphics, or images), and how the color of the object is specified in the software program (RGB or CMYK combinations).

Notes:

- Manual color correction is not useful if the software program does not specify colors with RGB or CMYK combinations. It is also not effective in situations in which the software program or the computer operating system controls the adjustment of colors.
- The color conversion tables—applied to each object when Color Correction is set to Auto—generate preferred colors for the majority of documents.

To manually apply a different color conversion table:

1. Touch to open the Administrative menus.
2. Navigate to **Settings > Print Settings > Quality Menu**.

3. Touch or to select **Manual** from the **Color Correction** setting.
4. Touch **Submit** to save the setting. The display returns to the Print Settings menu.
5. Navigate to **Manual Color**.
6. Select the appropriate color conversion table for the affected object type.

Object type	Color conversion tables
RGB Image RGB Text RGB Graphics	• **Vivid**—Produces brighter, more saturated colors and may be applied to all incoming color formats. • **sRGB Display**—Produces an output that approximates the colors displayed on a computer monitor. Black toner usage is optimized for printing photographs. • **Display**—**True Black**—Produces an output that approximates the colors displayed on a computer monitor. Uses only black toner to create all levels of neutral gray. • **sRGB Vivid**—Provides an increased color saturation for the sRGB Display color correction. Black usage is optimized for printing business graphics. • **Off**—No color correction is implemented.
CMYK Image CMYK Text CMYK Graphics	• **US CMYK**—Applies color correction to approximate the SWOP (Specifications for Web Offset Publishing) color output. • **Euro CMYK**—Applies color correction to approximate EuroScale color output. • **Vivid CMYK**—Increases the color saturation of the US CMYK color correction setting. • **Off**—No color correction is implemented.

How can I match a particular color (such as a corporate logo)?

From the printer Quality menu, nine types of Color Samples sets are available. These are also available from the Color Samples page of the Embedded Web Server. Selecting any sample set generates a multiple-page printout consisting of hundreds of colored boxes. Either a CMYK or RGB combination is located on each box, depending on the table selected. The observed color of each box is obtained by passing the CMYK or RGB combination labelled on the box through the selected color conversion table.

To print Color samples from the printer:

1. Touch to access the Administrative menus.
2. Navigate to **Settings > Print Settings > Quality Menu > Color Samples**.
3. Select the **Color Conversion** table to print.

By examining Color Samples sets, a user can identify the box whose color is the closest to the desired color. The color combination labelled on the box can then be used for modifying the color of the object in a software program. For more information, see the software program Help topics. Manual color correction may be necessary to utilize the selected color conversion table for the particular object.

Selecting which Color Samples set to use for a particular color-matching problem depends on the Color Correction setting being used (Auto, Off, or Manual), the type of object being printed (text, graphics, or images), and how the color of the object is specified in the software program (RGB or CMYK combinations). When the printer Color Correction setting is set to Off, the color is based on the print job information; and no color conversion is implemented.

Note: The Color Samples pages are not useful if the software program does not specify colors with RGB or CMYK combinations. Additionally, certain situations exist in which the software program or the computer operating system adjusts the RGB or CMYK combinations specified in the program through color management. The resulting printed color may not be an exact match of the Color Samples pages.

What are detailed Color Samples and how do I access them?

Detailed Color Samples sets are available only through the Embedded Web Server of a network printer. A detailed Color Samples set contains a range of shades (displayed as colored boxes) that are similar to a user-defined RGBor CMYK value. The likeness of the colors in the set are dependent on the value entered in the RGB or CMYK Increment box.

To access a detailed Color Samples set from the Embedded Web Server:

1. Open a Web browser.
2. In the address bar, type the network printer IP address.
3. Click **Configuration**.
4. Click **Color Samples**.
5. Click **Detailed Options** to narrow the set to one color range.
6. When the Detailed Options page appears, select a color conversion table.
7. Enter the RGB or CMYK color number.
8. Enter an Increment value from 1–255.
   Note: The closer the value is to 1, the narrower the color sample range will appear.
9. Click **Print** to print the detailed Color Samples set.

4. Repair information

Warning: Read the following before handling electronic parts.

Handling ESD-sensitive parts

Many electronic products use parts that are known to be sensitive to electrostatic discharge (ESD). To prevent damage to ESD-sensitive parts, use the following instructions in addition to all the usual precautions, such as turning off power before removing logic boards:

- Keep the ESD-sensitive part in its original shipping container (a special “ESD bag”) until you are ready to install the part into the machine.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Put the ESD wrist strap on your wrist. Connect the wrist band to the system ground point. This discharges any static electricity in your body to the machine.
- Hold the ESD-sensitive part by its edge connector shroud (cover); do not touch its Pin. If you are removing a pluggable module, use the correct tool.
- Do not place the ESD-sensitive part on the machine cover or on a metal table; if you need to put down the ESD-sensitive part for any reason, first put it into its special bag.
- Machine covers and metal tables are electrical grounds. They increase the risk of damage because they make a discharge path from your body through the ESD-sensitive part. (Large metal objects can be discharge paths without being grounded.)
- Prevent ESD-sensitive parts from being accidentally touched by other personnel. Install machine covers when you are not working on the machine, and do not put unprotected ESD-sensitive parts on a table.
- If possible, keep all ESD-sensitive parts in a grounded metal cabinet (case).
- Be extra careful in working with ESD-sensitive parts when cold-weather heating is used, because low humidity increases static electricity.

Testing generic FRUs

The X54x series MFP’s RIP board and operator panel can be tested after installation. When testing the board, it is critical to POR the machine only into Diagnostics mode. DO NOT POR THE MACHINE TO A READY STATE. In Diagnostics mode, machine specific information is not written to the NVRAM on the replacement part. To properly test a replacement generic FRU, perform the following steps:

1. Replace the faulty RIP board.
2. Start the machine into diagnostics mode. See **“Menu key combinations” on page 3-5**.
3. Turn the machine off.
4. If the replacement part is not the cause of the issue, remove the replacement part.

Removal procedures

CAUTION

Remove the power cord from the electrical outlet before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the printer. Disconnect any connections between the printer and PCs/peripherals.

Notes:

- Some removal procedures require removing cable ties. You must replace cable ties during reassembly to avoid pinching wires, obstructing the paper path, or restricting mechanical movement.
- Remove the waste toner bottle, color toner cartridges, imaging unit, and media tray before removing other printer parts. The imaging unit should be carefully set on a clean, smooth, and flat surface. It should also be protected from light while out of the printer.
- Unless otherwise stated, reinstall the parts in reverse order of removal.
- When reinstalling a part held with several screws, start all screws before final tightening.

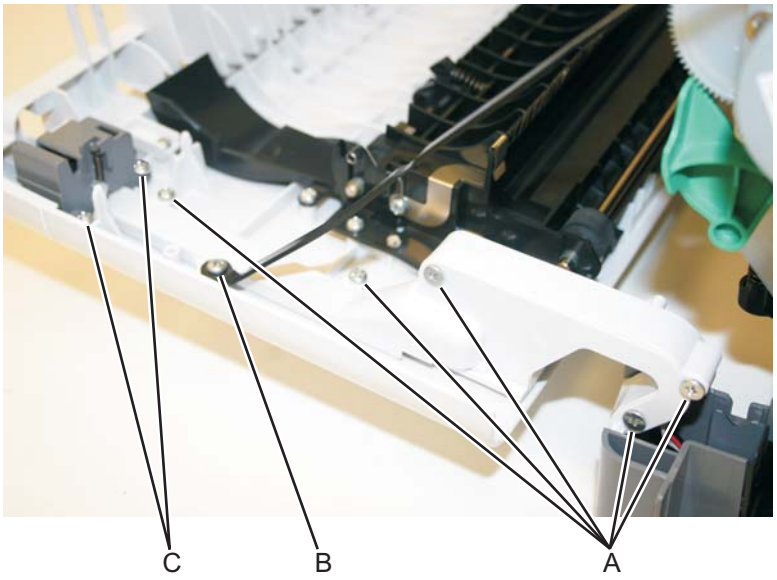
Print engine removal procedures

Notes:

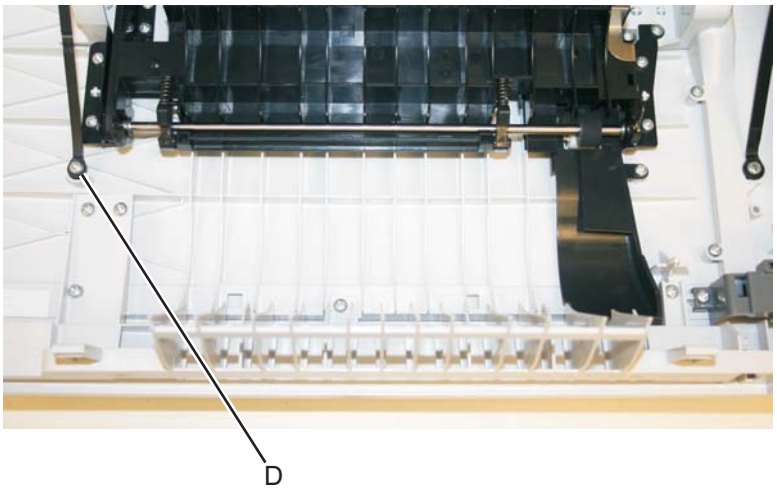
- Remove the waste toner container, color toner cartridges, imaging unit, and media tray before removing other printer parts. The imaging unit should be carefully set on a clean, smooth, and flat surface. It should also be protected from light while out of the printer.
- We recommend disconnecting all external cables from the printer to prevent damage during service.
- Unless otherwise stated, reinstall the parts in reverse order of removal.
- When reinstalling a part held with several screws, start all screws before final tightening.

Front cover assembly removal

1. Remove the media tray.
2. Open the front cover.
3. Remove the front middle cover (optional). See **"Front middle cover removal" on page 4-4**.
4. Remove the five screws (A) from the cable cover.
5. Remove the cable cover.
6. Remove the screw (B) securing the right restraining strap to the front cover.
   Note: Support the door with one hand after removing the screw holding the restraining strap. This is the longest of the eight screws. Two flat-headed Phillips screws are used in the door hinge.
7. Remove the two screws (C) securing the interlock and cable.



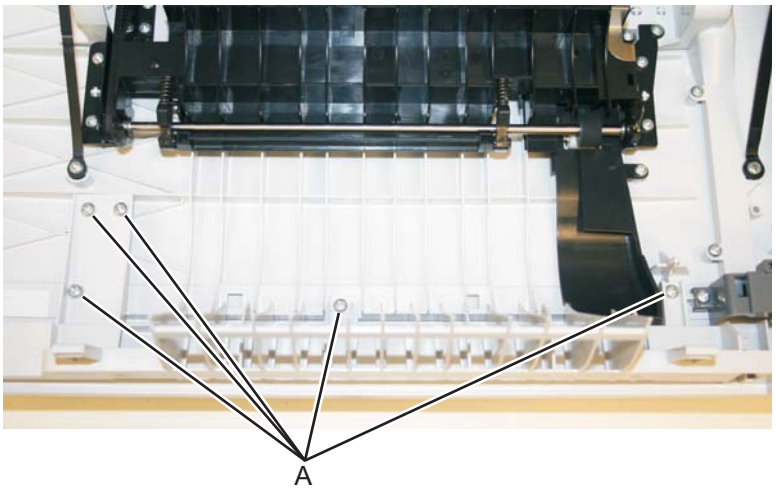
8. Route the cable through the right hinge.
   Note: Make a note of the interlock sensor cable routing through the right hinge and front door.
9. Remove screw (D) securing the left restraining strap to the front door.



10. Lower the front cover to align the flats on the hinges, and remove the front cover.

Front middle cover removal

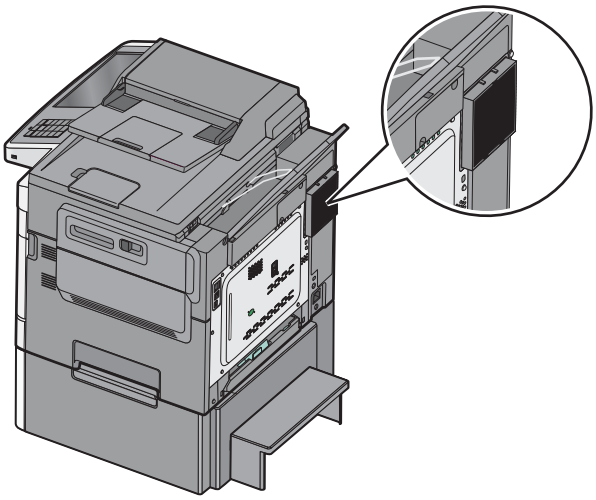
1. Open the front cover.
2. Remove the five screws (A) securing the front middle cover to the lower front cover.

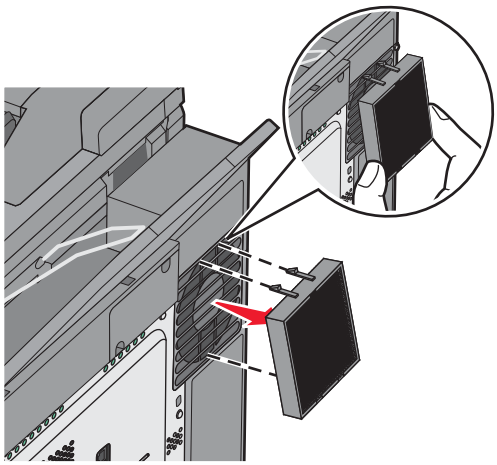


3. Pull the front middle cover away from the front cover.

Left cover removal

Note: Some printers may have a filter installed on the fan grill. Remove the filter before continuing with the removal procedure.

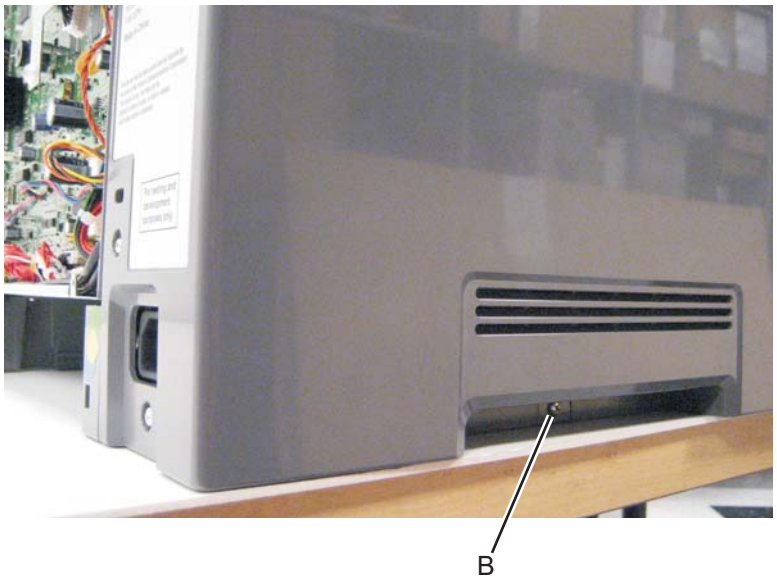




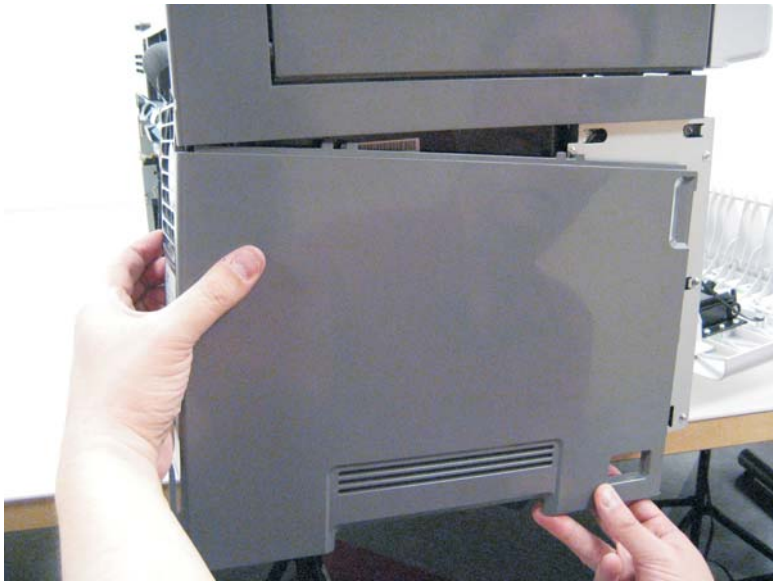
1. Remove the media tray.
2. Open the front cover.
3. Position the printer with the left side hanging over the edge of the table.

4. Remove the three screws (A) on the rear side of the left cover.

5. Remove the screw (B) on the bottom of the cover.



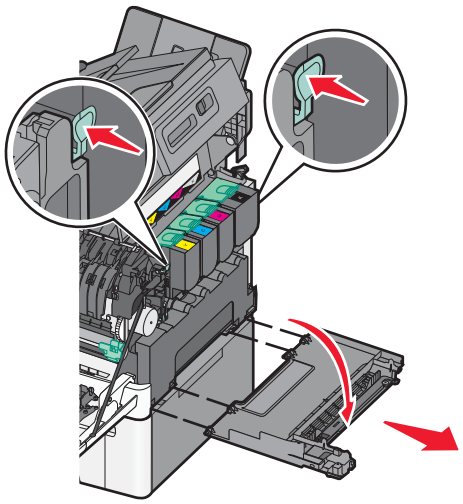
6. With a hand on the bottom of the cover, ease the cover over the off/on switch, and rotate the cover away from the printer.
Warning: Be careful not to damage the rear tab at the upper rear side of the cover.



Installation note: When replacing the left cover, flex the cover slightly to engage the tab near the power switch.

Right cover removal

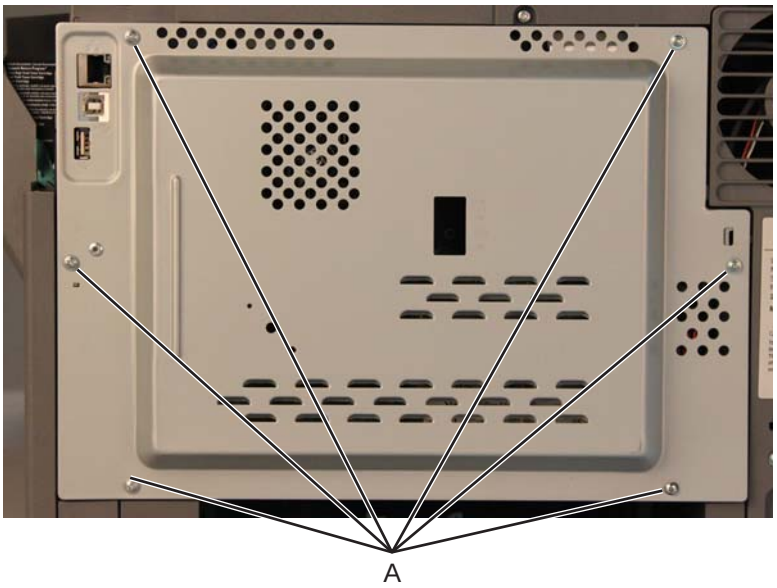
1. Lift and lock the flatbed assembly to the raised position.
2. Open the front cover.
3. Release the green latches securing the door.
4. Lower the right cover and remove it from the hinges.



Rear shield removal

The rear shield is not a field replaceable unit (FRU).

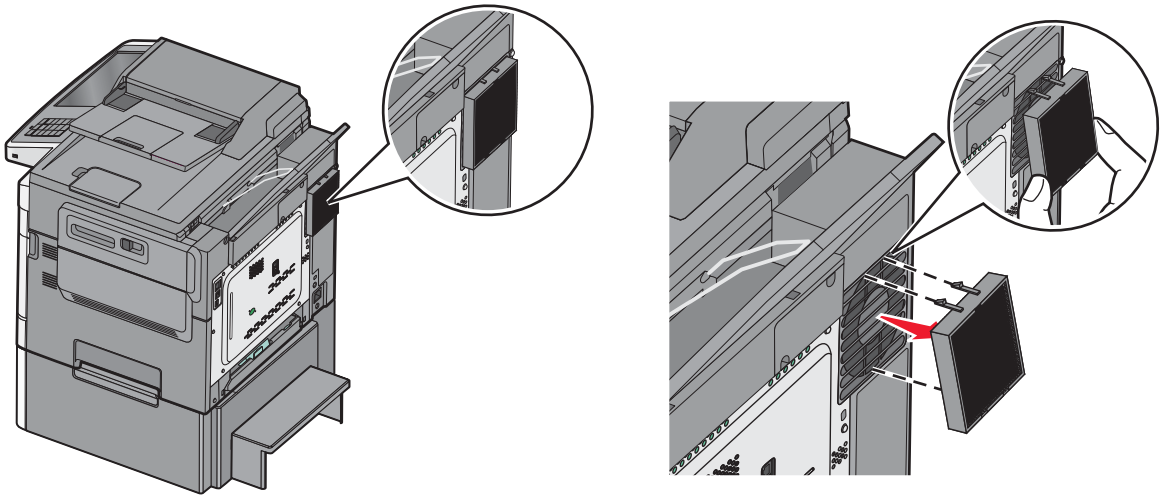
1. Remove the six screws (A).



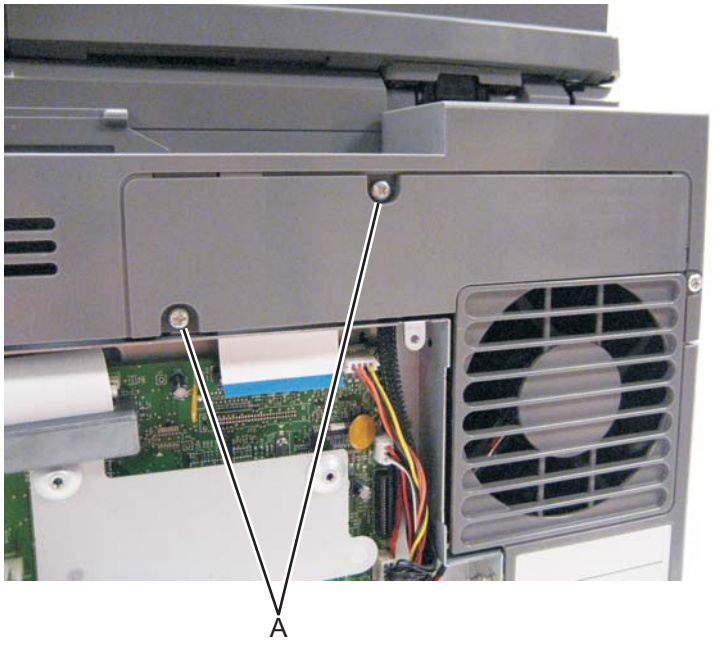
2. Remove the rear shield.

AIO back cable cover removal

Note: Some printers may have a filter installed on the fan grill. Remove the filter first before continuing with the removal procedure.



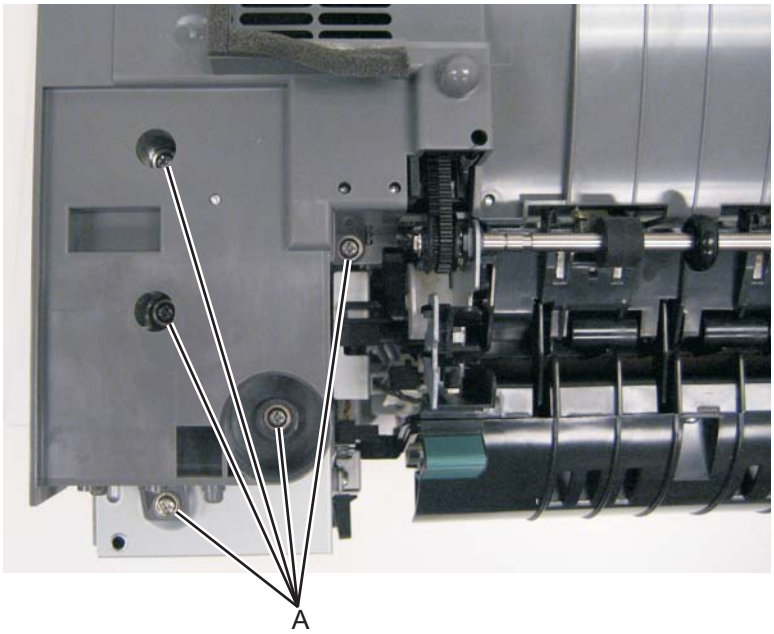
1. Remove the two screws (A) securing the AIO back cable cover to the MFP.



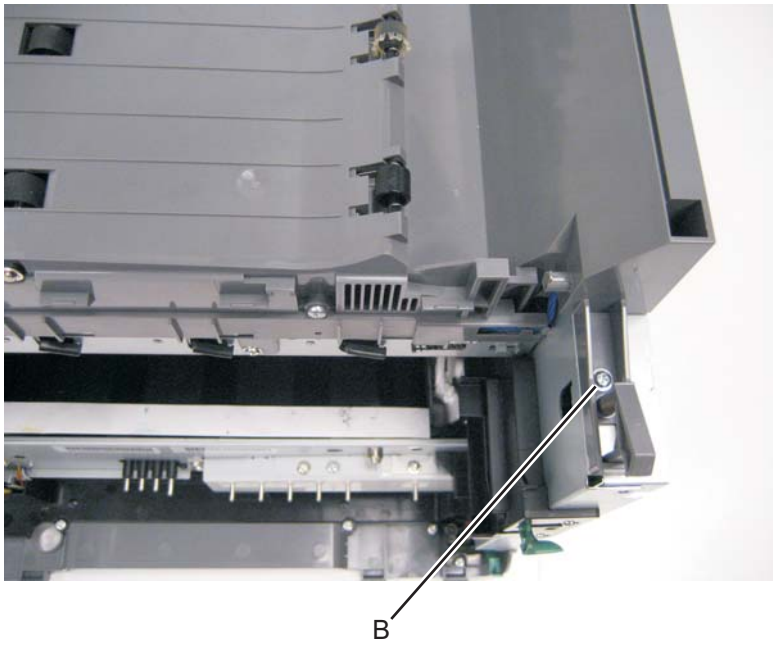
2. Place a small flat-blade screwdriver under the bottom of the cover, and gently pry the cover upward.

Top cover assembly removal

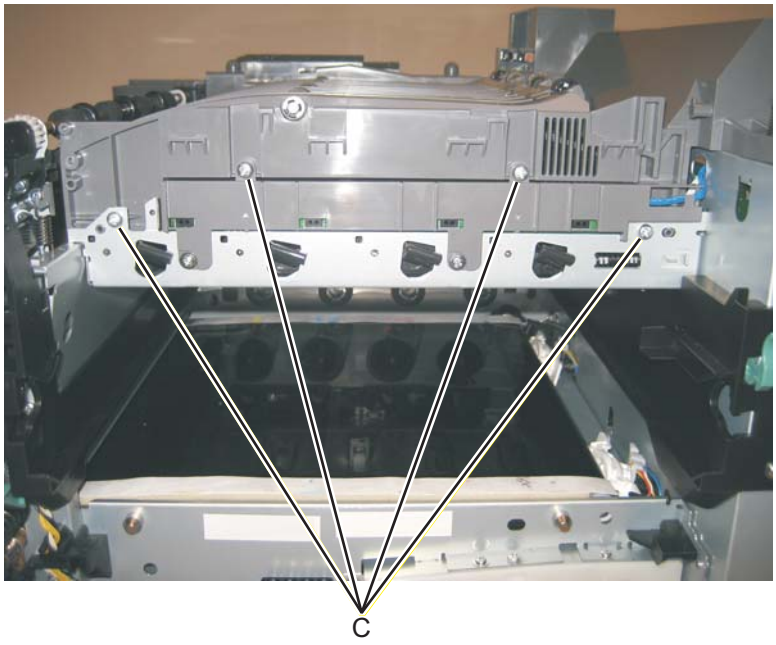
1. Remove the flatbed assembly. Go to **"Flatbed removal" on page 4-75**.
2. Remove the AIO toner cover. Go to **"AIO toner cover removal" on page 4-98**.
3. Remove the five screws (A) from the left front side.



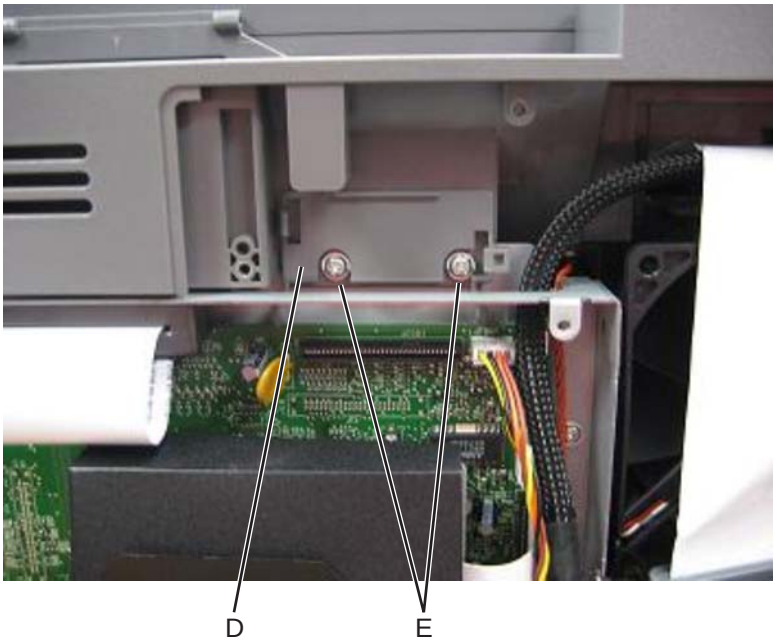
4. Remove the screw (B) from the top right side of the cover.



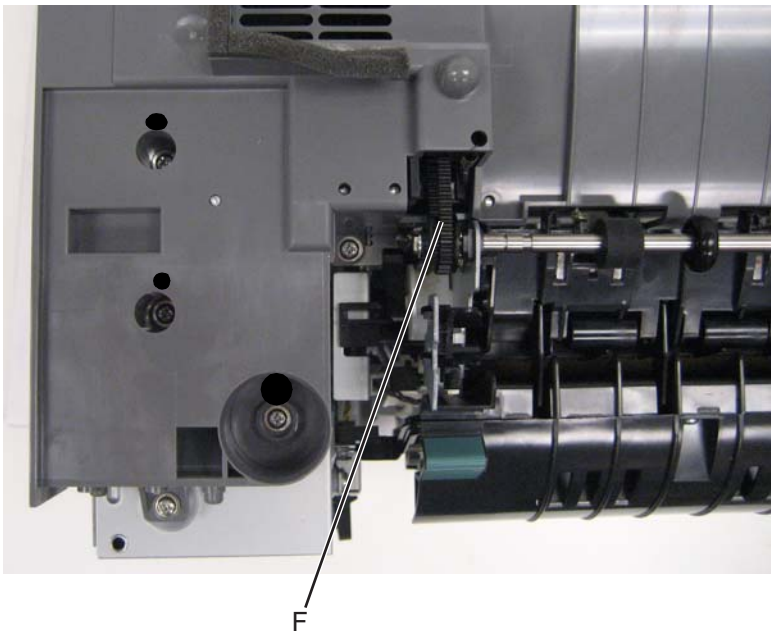
5. Remove the four screws (C) on the right side of the top cover.



6. Remove the toroid holder (D) and two screws (E) from the rear. The toroid holder will be used for the new top cover.



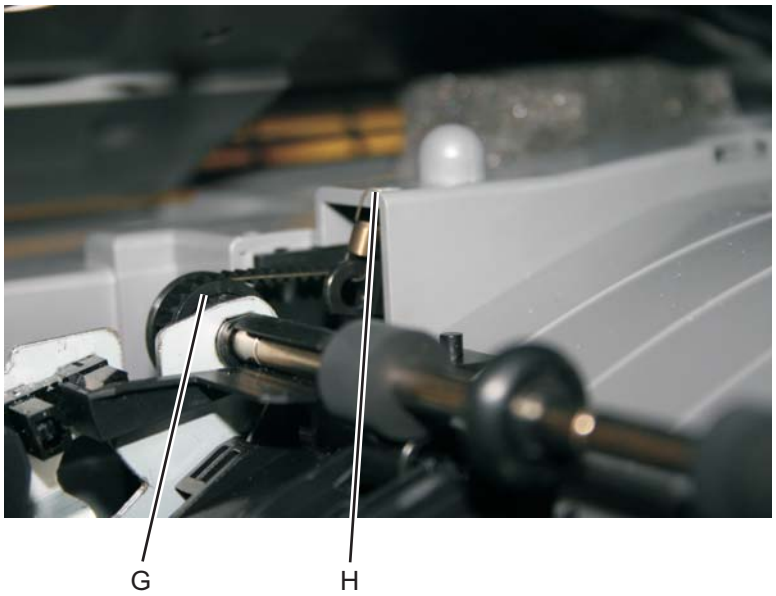
7. Detach the re-drive belt (F) from the pulley on the fuser exit roll shaft.



8. Disconnect the fan power cable from JFAN1 on the RIP board.
9. Disconnect the bin full sensor cable from JPJ1 on the RIP board.
10. Remove the top cover, being careful to route the bin full sensor cable through the top of the RIP board cage.

Installation notes:

Warning: Make sure the belt is attached to the gear (B), Also; check the tension spring to make sure it is properly attached to the top cover (C). The following illustration shows the properly attached spring and belt.

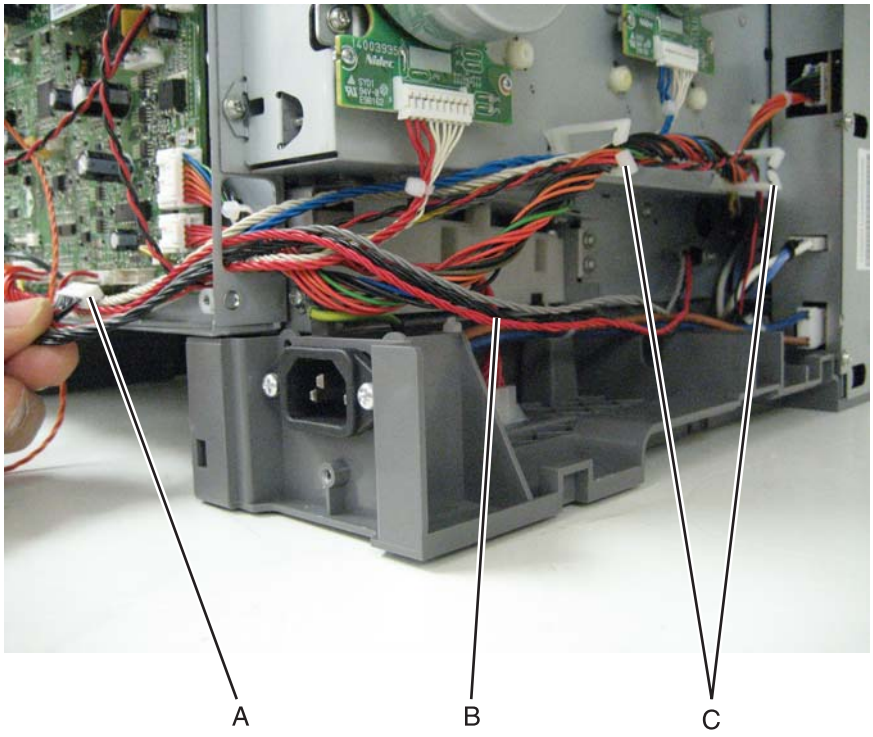


Warning: After performing any repair that involves detaching the belt from the re-drive pulley on the fuser, run approximately 30 test pages, both simplex and duplex, to ensure the belt is performing properly. While the pages are running, listen for any noises, buzzing, clicking or rattling, that might indicate improper routing of the re-drive belt.

Installation note: Install the narrow media sensor flag before reinstalling the flatbed.

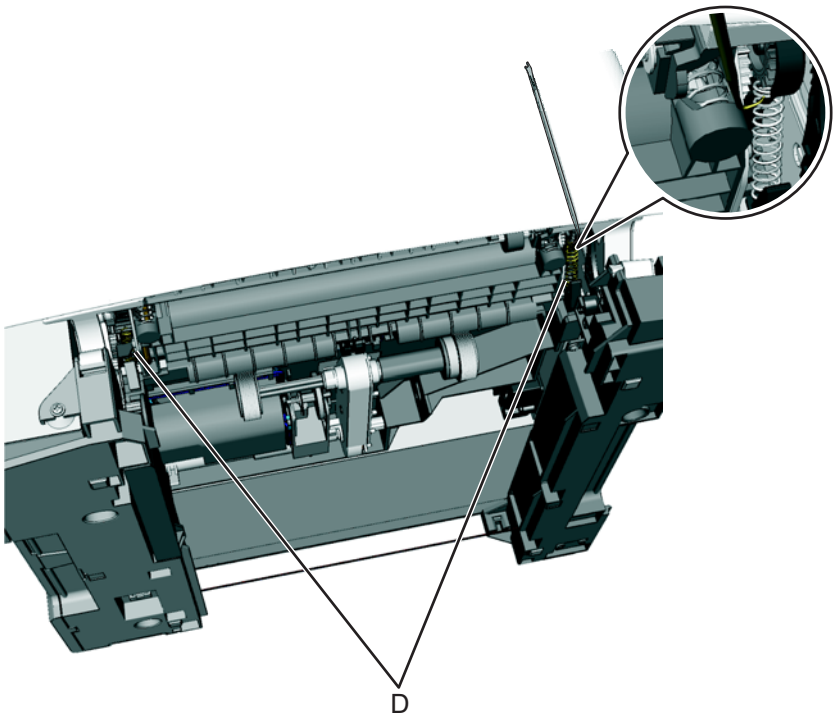
Autocompensator mechanism (ACM)—standard tray removal

1. Remove the toner bottles, the waste toner bottle, and the imaging unit (IU). See **"Imaging unit (IU) removal" on page 4-63** and **"Waste toner bottle removal" on page 4-73**.
2. Remove the rear shield. See **"Rear shield removal" on page 4-7**.
3. Remove the left cover. See **"Left cover removal" on page 4-4**.
4. Remove the right cover. See **"Right cover removal" on page 4-7**.
5. Disconnect the ACM cable connector JSP1 (A) from the RIP board.
6. Unclip the cable (B) from the retainers (C) on the left side.

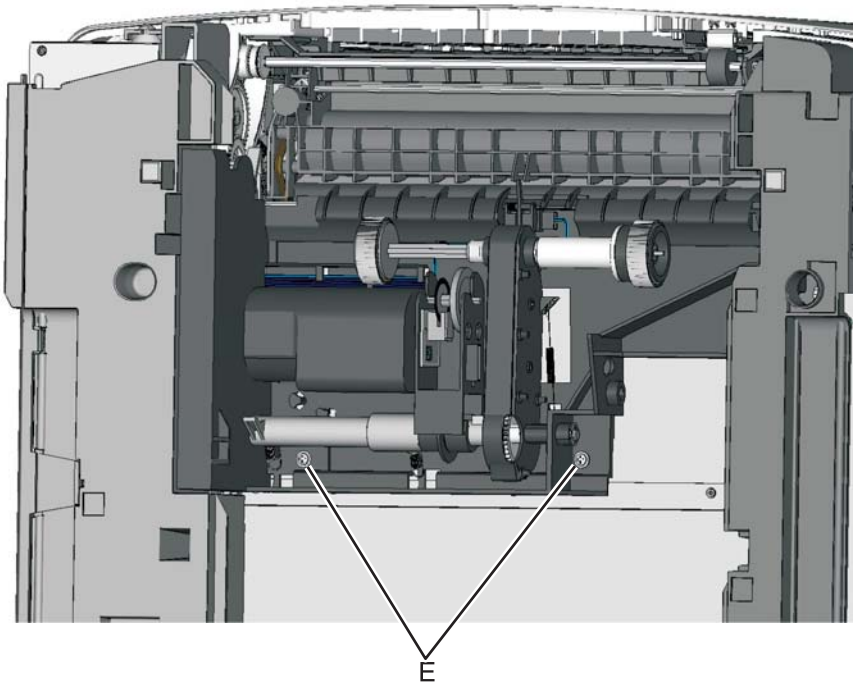


7. Reinstall the rear shield to protect the RIP board. Turn the printer so the bottom is facing you.
8. Carefully tilt the printer so the rear shield rests on the table.

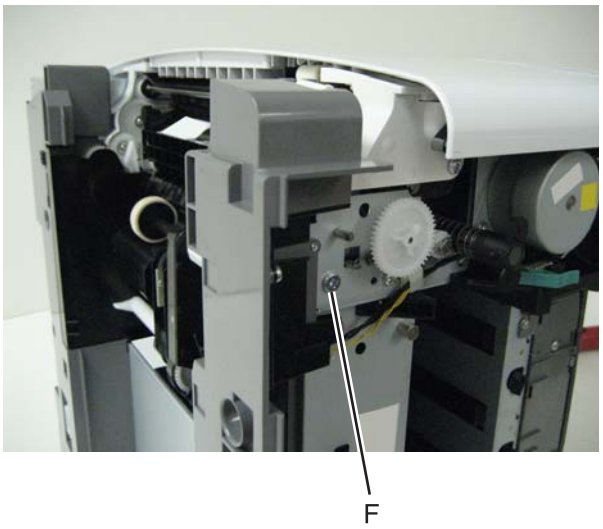
9. Remove the two springs (D).



10. Remove the two screws (E) on the bottom.



11. On the right side, loosen the screw (F), and hold the ACM in place as you use your fingers to remove the screw.



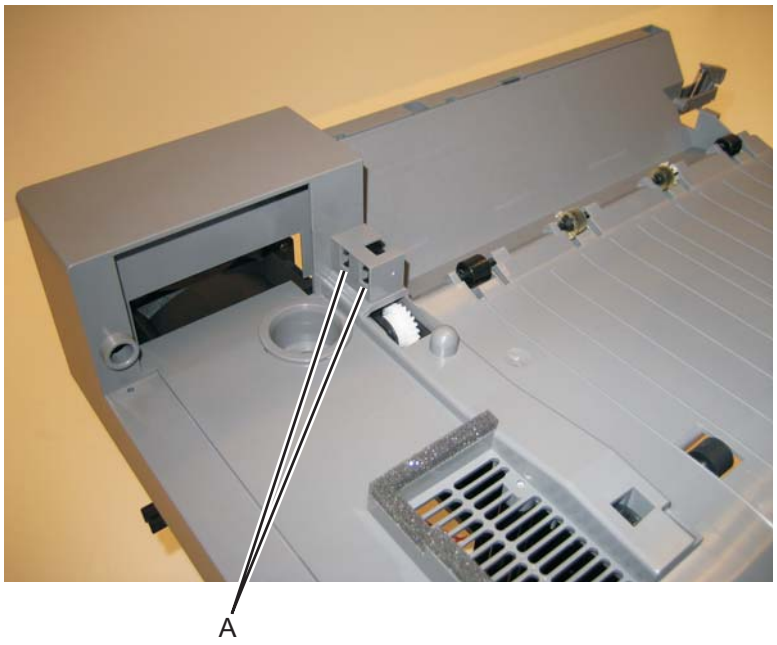
12. Move the right side of the ACM out to free the shaft from the hole in the frame.
    Note: Observe the location of the shaft and hole for reinstallation.
13. Remove the ACM.

Installation notes:

1. Place the left side of the ACM in the printer. Make sure the shaft on the left side aligns with the hole in the frame.
2. Turn the printer to the proper upright position.
3. Route the cable through the frame and through the cable channel, making sure to clamp the cables into the two retainers on the left side.
4. Remove the rear shield, and connect the cable.
5. Replace the rear shield.

Bin full sensor removal

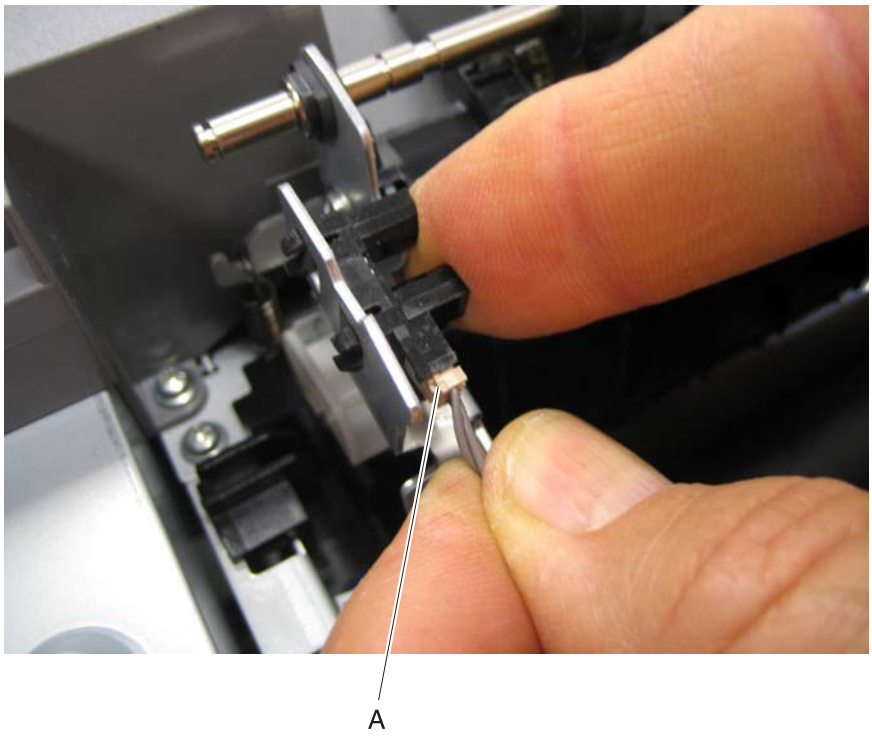
1. Remove the flatbed unit. See **“Flatbed removal” on page 4-75**.
2. Using a small flat-blade screwdriver, gently depress the tabs (A) which secure the sensor to the top cover assembly.



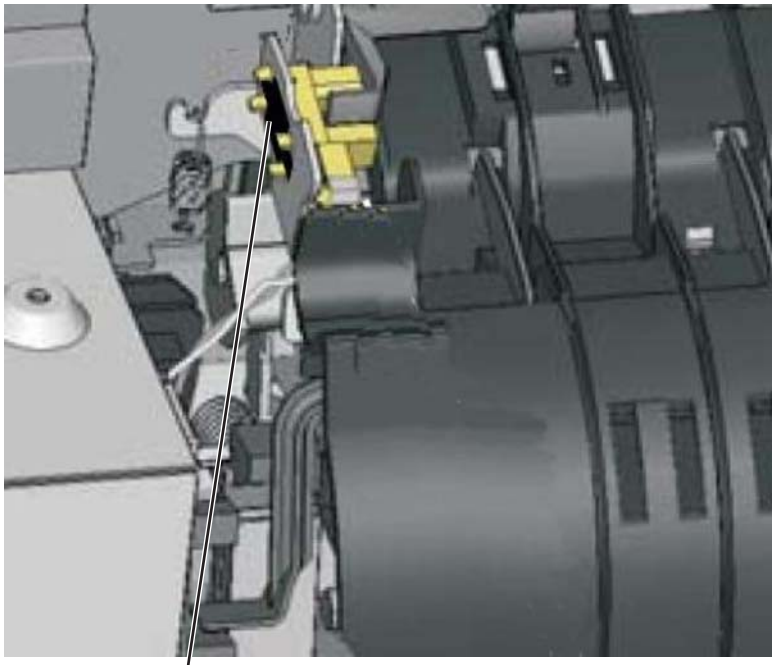
3. Pull the sensor away from the top cover assembly.
4. Disconnect the sensor from the cable.

Narrow media sensor flag removal

1. Open the front cover.
2. Remove the narrow media sensor flag.
3. Remove the cable from the retainer.
   Note: Be sure to note the routing for reinstallation.
4. Disconnect the cable (A) from the narrow media sensor.



5. If there is a sensor retaining plate (B), remove the plate.



6. Squeeze the retainers on the rear of the sensor, and gently remove the sensor from the bracket by hand.

Installation notes:

1. Clean the contact surface where you removed the sensor retaining plate, or where you need to install the new one.
2. Guide the latches that hold the sensor in the bracket into place.
3. Remove the backing from the new plate, and place the plate on the surface between the sensor mounting legs.
4. Squeeze the latches together until they extend onto the surface of the plate.
5. Reconnect the cable, and reroute the cable through the retainer.

RIP board removal

Warning: Observe all ESD precautions while handling electrostatic-discharge sensitive parts. See **"Handling ESD-sensitive parts" on page 4-1**.

Warning: When replacing any one of the following components:

- Operator panel assembly
- RIP board

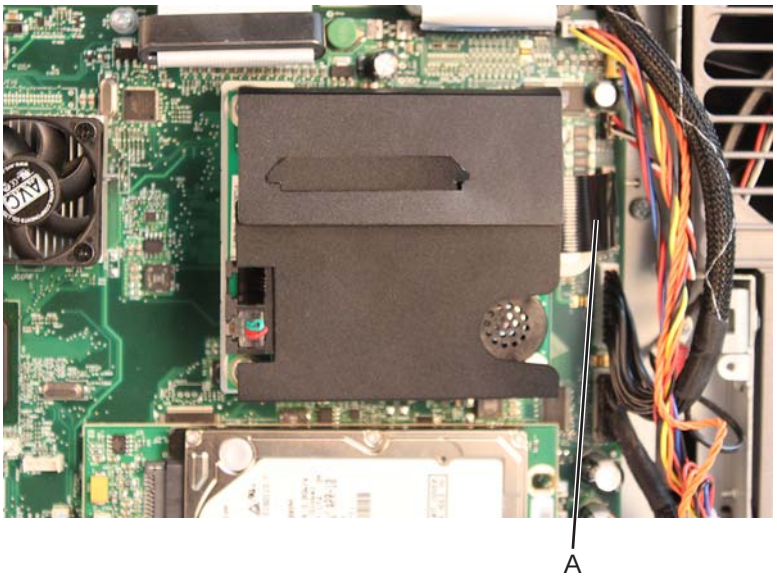
Replace only one component at a time. Replace the required component, and perform a POR before replacing a second component listed above. If this procedure is not followed, the printer will be rendered inoperable. Never replace both of the components listed above without a POR after installing each one, or the printer will be rendered inoperable.

Warning: Never install and remove components listed above as a method of troubleshooting components. **Once a component has been installed in a printer, it cannot be used in another printer. It must be returned to the manufacturer.**

	CAUTION POTENTIAL INJURY: There is danger of explosion if a lithium battery is incorrectly replaced. Replace it only with the same or an equivalent type of lithium battery. Do not recharge, disassemble, or incinerate a lithium battery. Discard used batteries according to the manufacturer's instructions and local regulations.

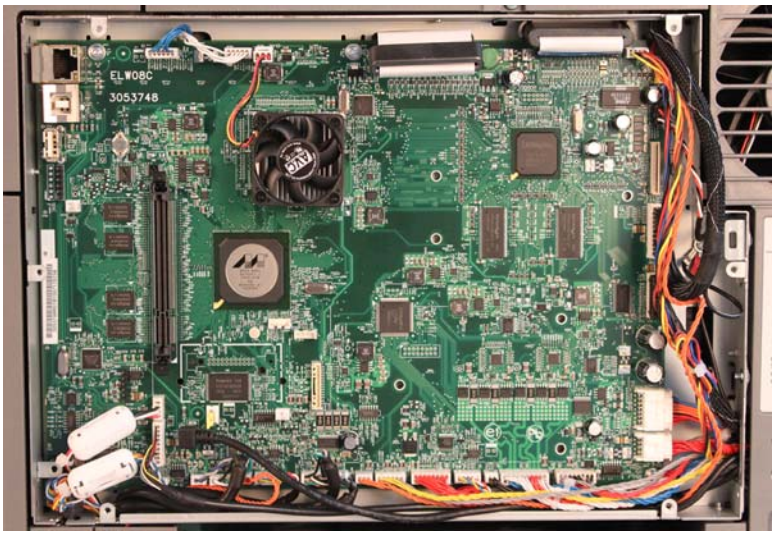
Note: Back up the eSF applications and settings before replacing the RIP board. See **"Backing up eSF applications and settings" on page 3-44**.

1. Remove the rear shield. See **"Rear shield removal" on page 4-7**.
2. Disconnect the fax card cable (A) from the RIP board.

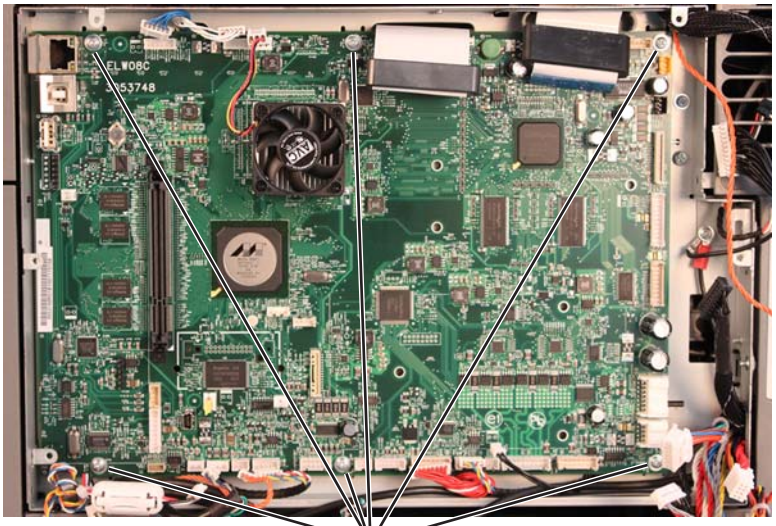


3. Remove the fax card with its standoff from the RIP board.
4. Remove the hard drive. See **"Hard drive removal" on page 4-39**.

5. Disconnect all the cables from the RIP board.



6. Remove the six screws (B) securing the RIP board to the RIP board cage.



7. Remove the board.

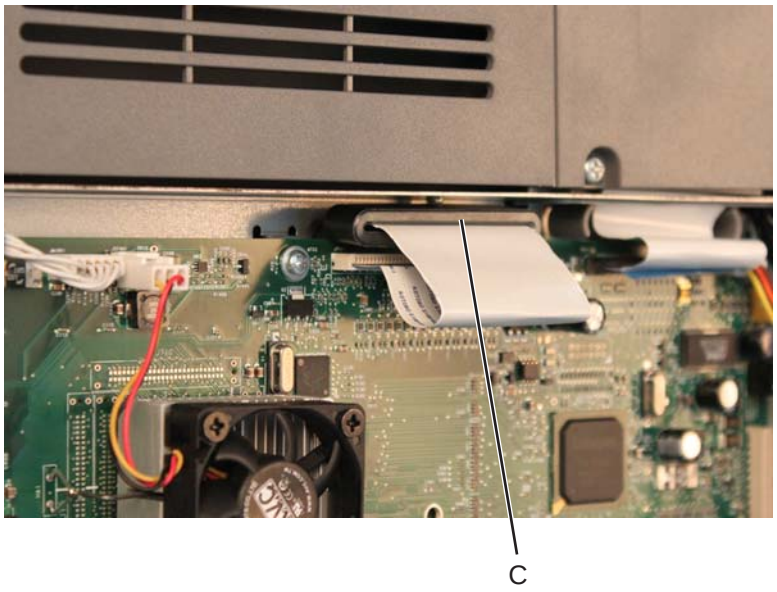
Installation note: Perform the Motor detect test and Scanner manual registration after replacing the RIP board. See **"Motor Detect" on page 3-14** and **"Scanner Manual Registration" on page 3-38**.

Warning: Do not start the machine into Ready state to test it. See **"Testing generic FRUs" on page 4-1**.

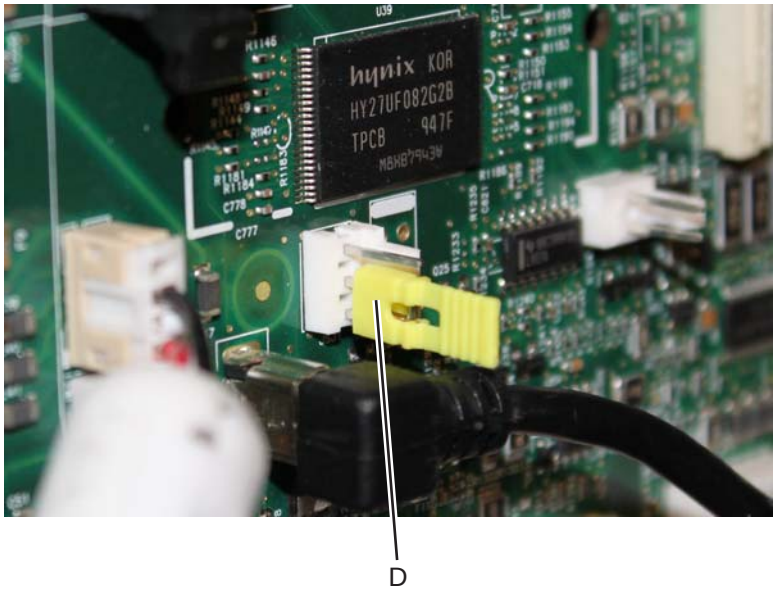
Warning: When replacing the RIP board, verify the cable from the high-voltage power supply is seated properly. The cable may have come loose from the HVPS.

- Print a few pages to verify the installation. If the pages are blank, confirm that the high-voltage power supply cable is properly seated. The connector may have been loosened at the HVPS.
- A blank page that should have toner on it could be an indication that toner is applied to the ITU belt but not transferred. Therefore the toner goes into the ITU cleaner which cannot process massive amounts of toner. It is important to prevent extensive blank pages from being processed if they should have toner on them.
- When installing the RIP board, make sure to route all of the cables through the correct openings.

- Tuck the printhead cable toroid (C) as shown below. Failure to do so can damage the RIP board.



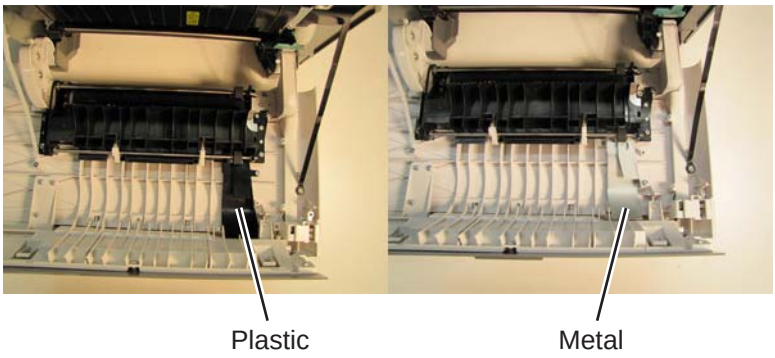
Note: Pay attention to the jumper configuration (D). An improper configuration will cause the printer to malfunction.



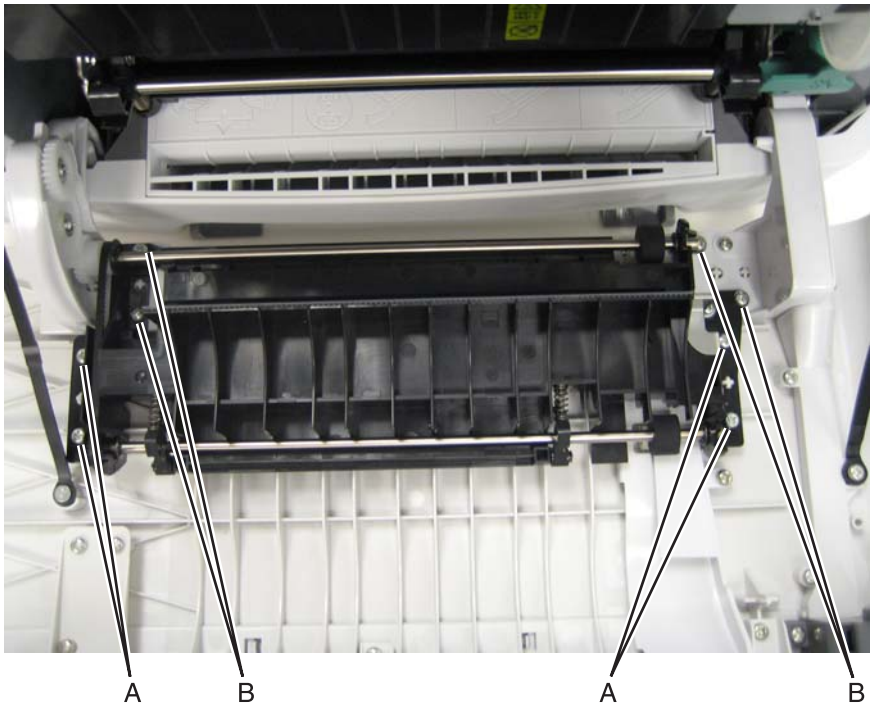
Duplex reference edge removal

Note: If the duplex reference edge is made of plastic, then replace it.

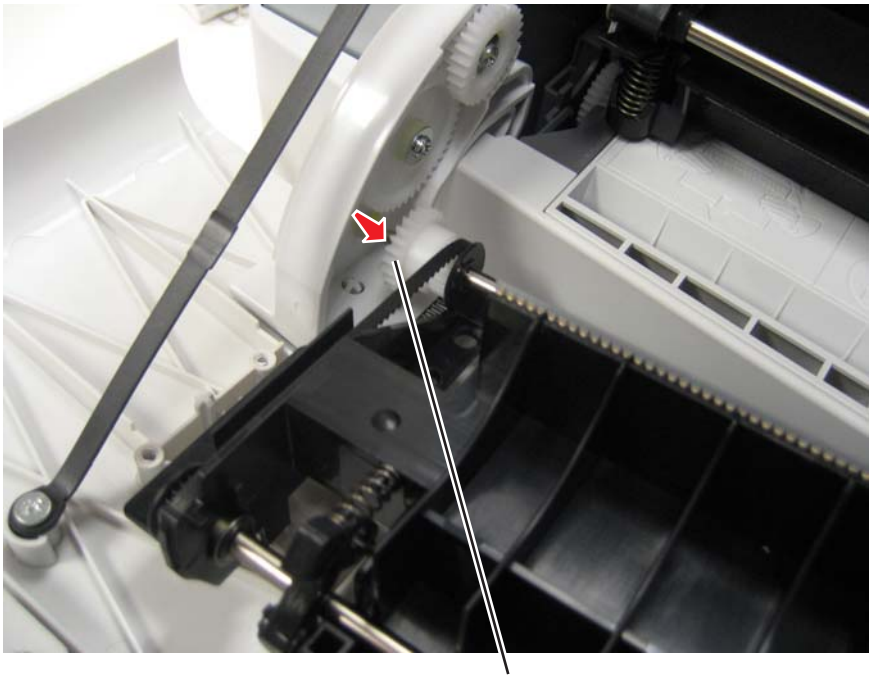
If the duplex reference edge is made of metal, then do not replace it.



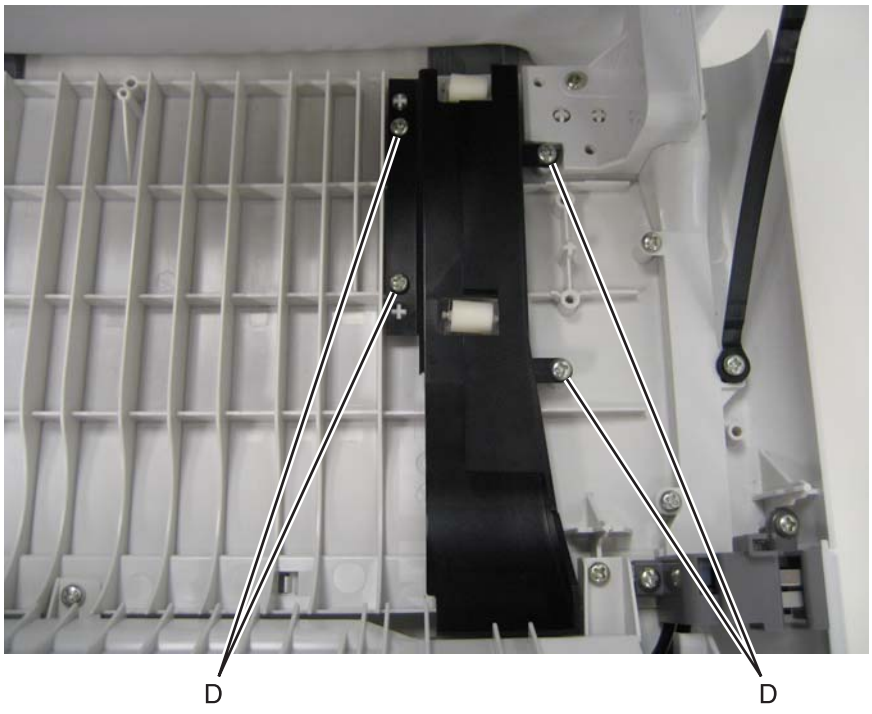
1. Open the front door.
2. Remove the four short screws (A) in front, and the four longer screws (B) in the back of the duplex aligner.



3. Lift the duplex aligner on the right side, and disengage the gears (C) on the left.

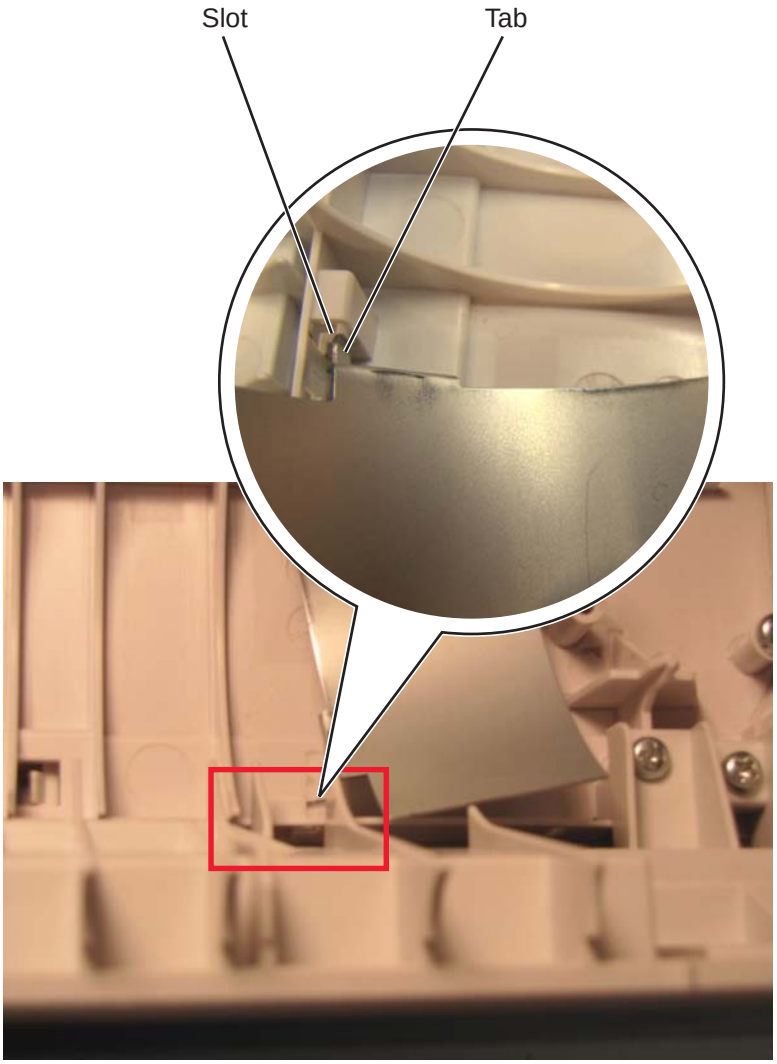


4. Remove the four screws (D) from the duplex reference guide, and remove the guide.

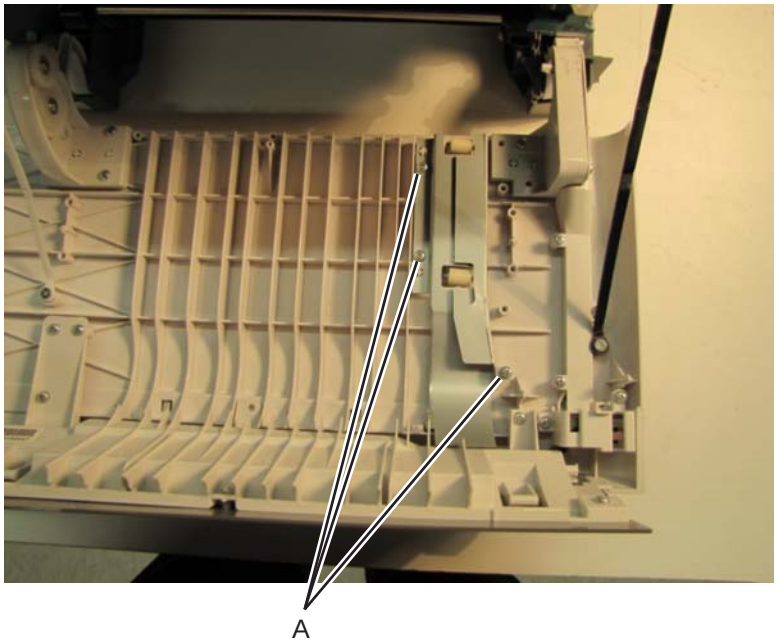


Installation notes:

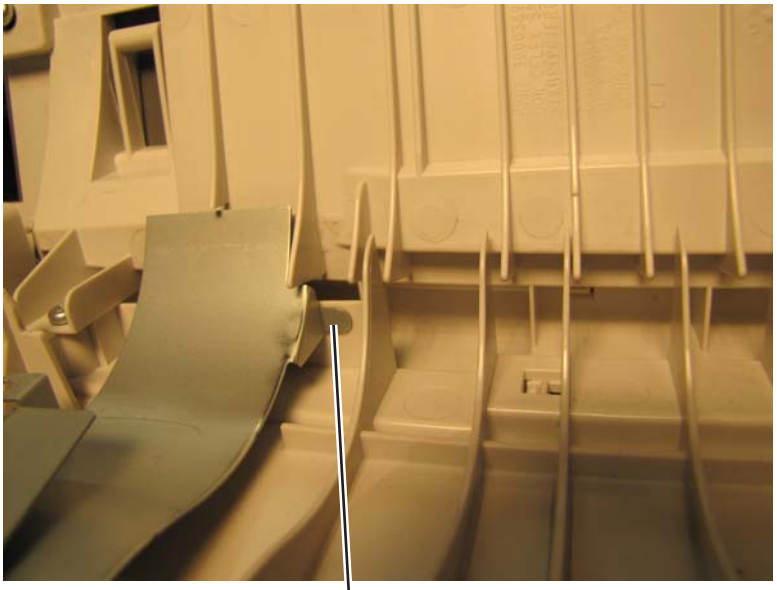
1. Depending on the kind of front cover, follow the procedure that applies:
   - If the front cover has a slot
     a. Place the tab in the slot.



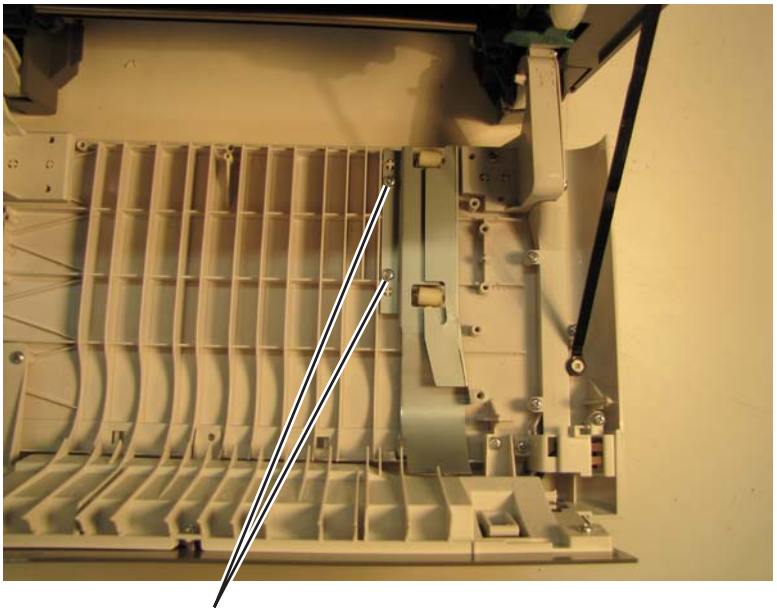
b. Rotate the tab into position, and replace the three screws (A).



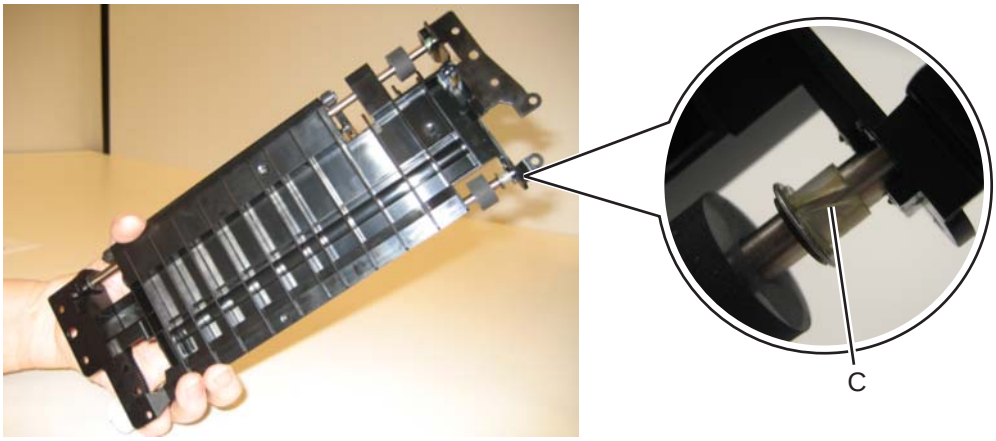
- If the front cover does not have a slot
  a. Place the tab against the cover.



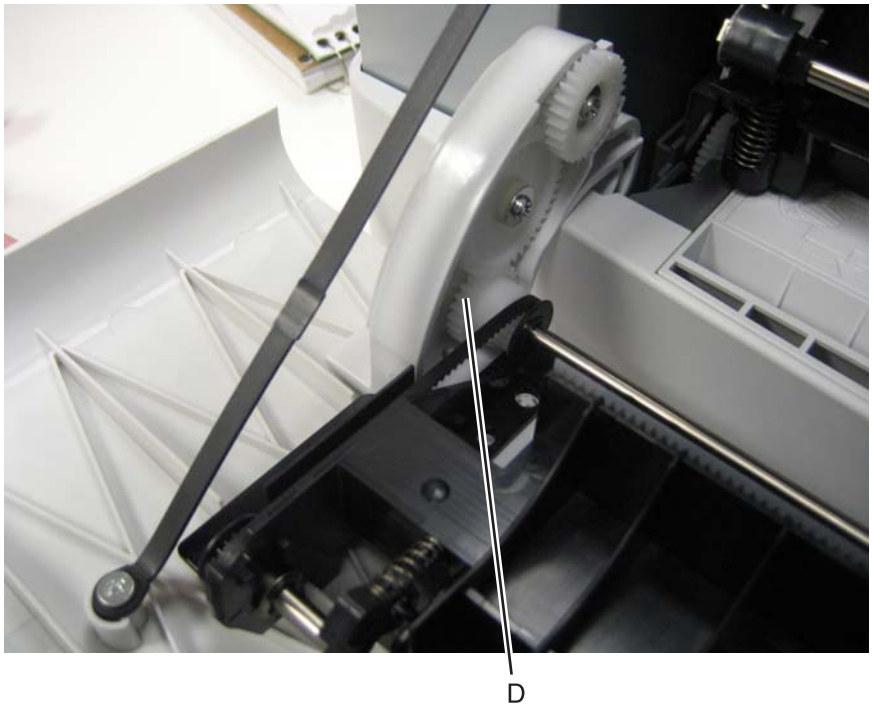
  b. Replace the two screws (B).



2. Be sure the shaft and bearing have not shifted out of the guide, and that the bearing on the left is aligned with the slot (C) facing down (towards the front door).
   Note: Improperly aligned bearings or shafts incorrectly seated may cause vibration and noise in the front door.



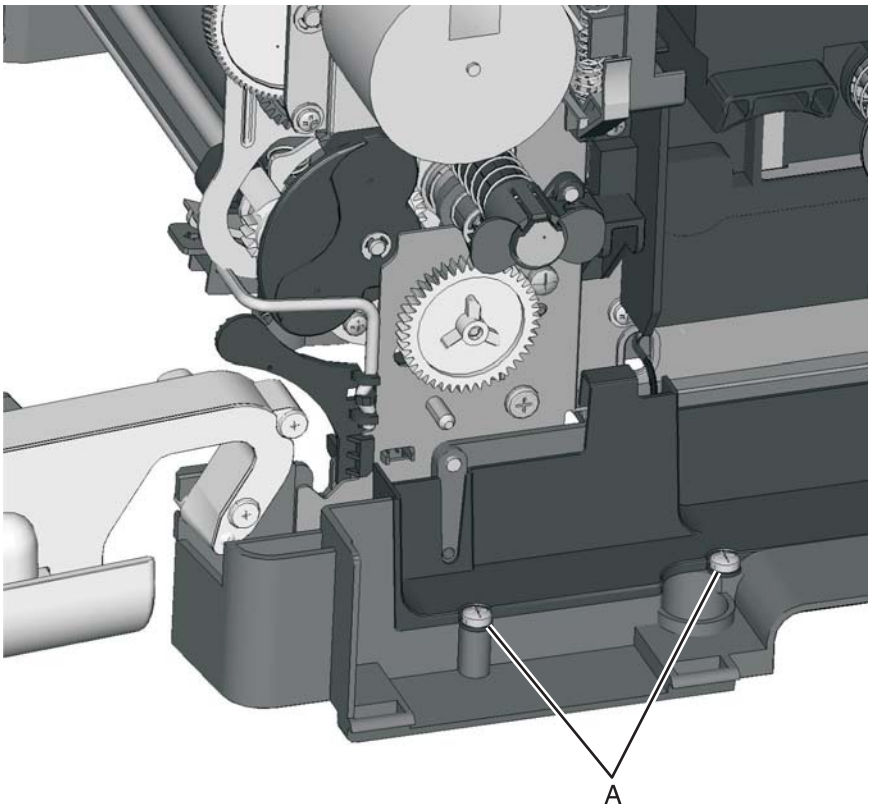
3. Align the duplex aligner guide so the gears (D) mesh on the left.



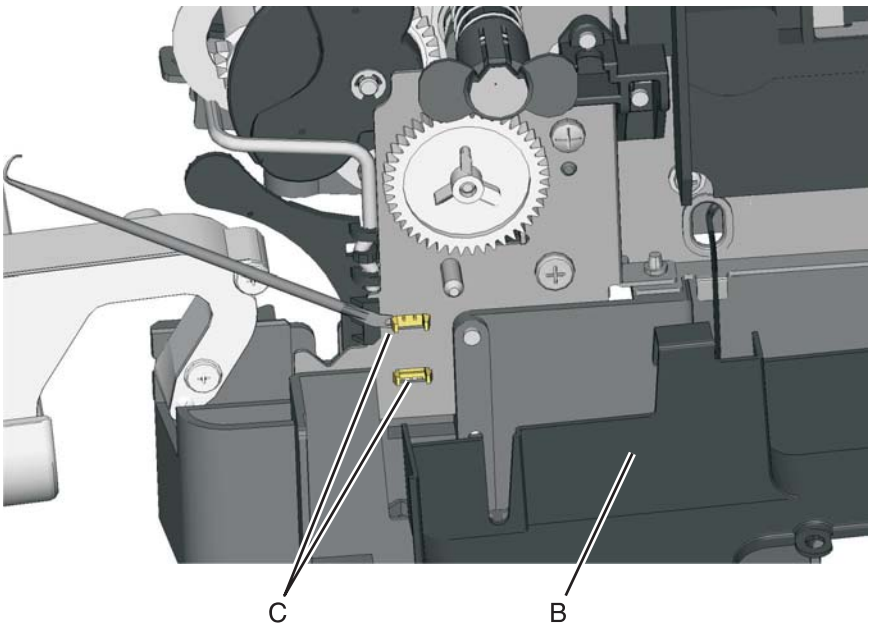
4. Replace the eight screws in the duplex aligner.
5. Close the front door.

Duplex sensor removal

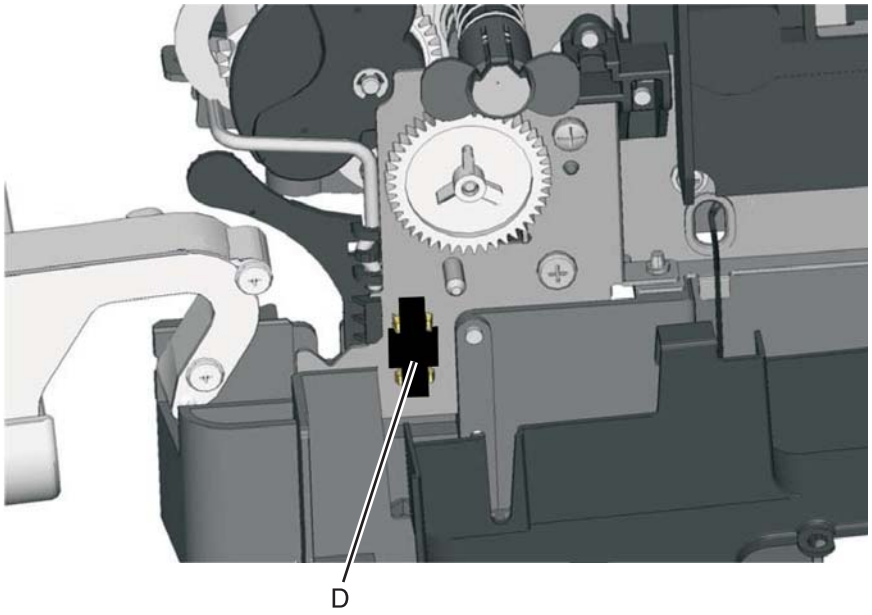
1. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-73**.
2. Remove the two screws (A) from the cable channel cover.



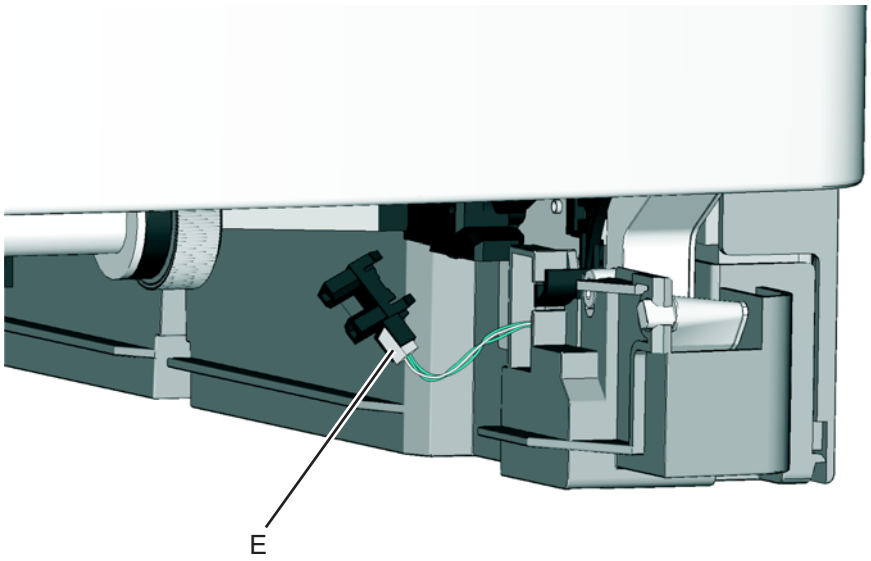
3. Pull the corner of the cable channel cover (B) away from the right side to access the sensor posts (C).



4. If there is a plate on the side of the sensor latches connected, remove the old adhesive plate (D).



5. Unlatch the sensor by pushing on the latches.
6. Remove the sensor, and disconnect the cable (E) from the duplex sensor.
   Note: Close the front cover, and slightly lift the front of the printer to get better access.



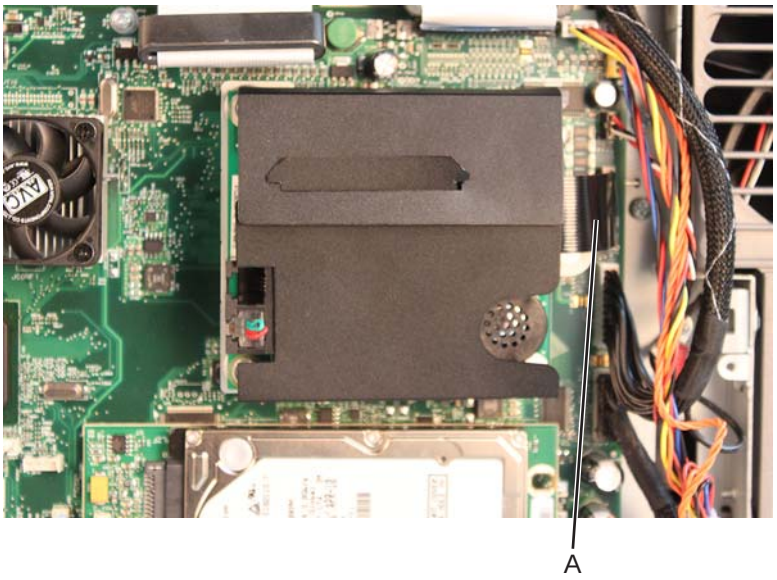
7. If there is plate on the side where the sensor latches connect, remove the old adhesive plate (E).

Installation notes:

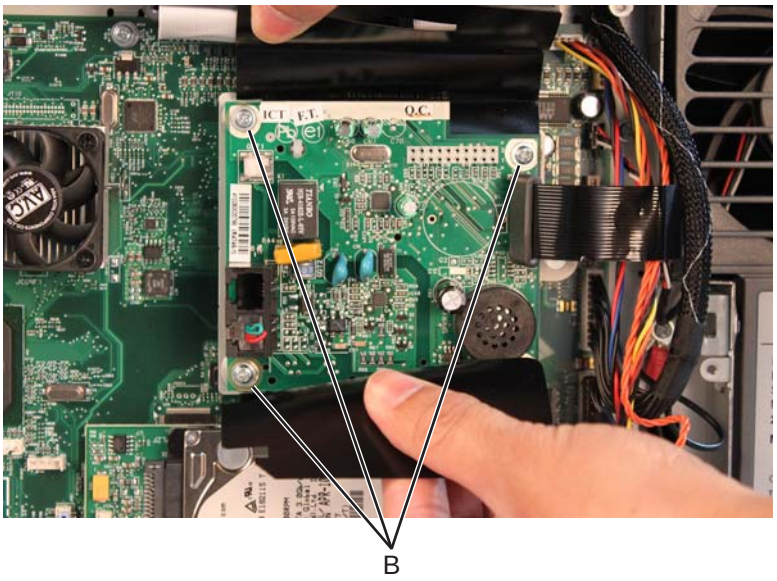
1. Clean the contact surface where you removed the sensor retaining plate, or where you need to install the new one.
2. Install the new sensor.
3. Remove the backing from the new plate, and place the plate on the surface between the sensor mounting legs.
   Note: Make sure the clamps on the legs extend onto the surface of the plate.

Fax card removal

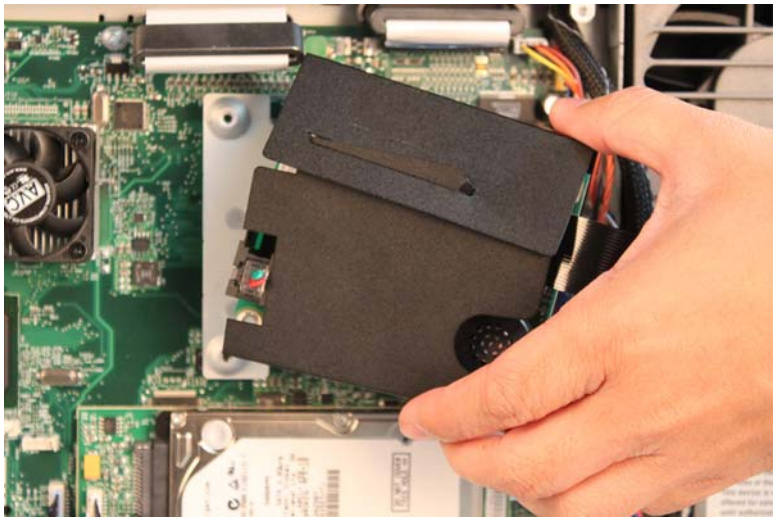
1. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
2. Disconnect the fax card cable (A) from the RIP board.



3. Open the fax card cover, and remove the three screws (B) from the fax card.

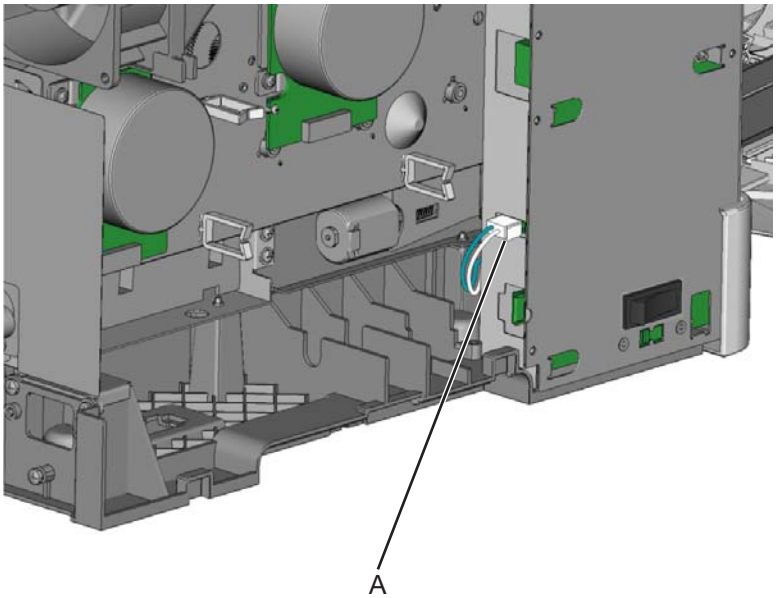


4. Remove the fax card from the standoff.



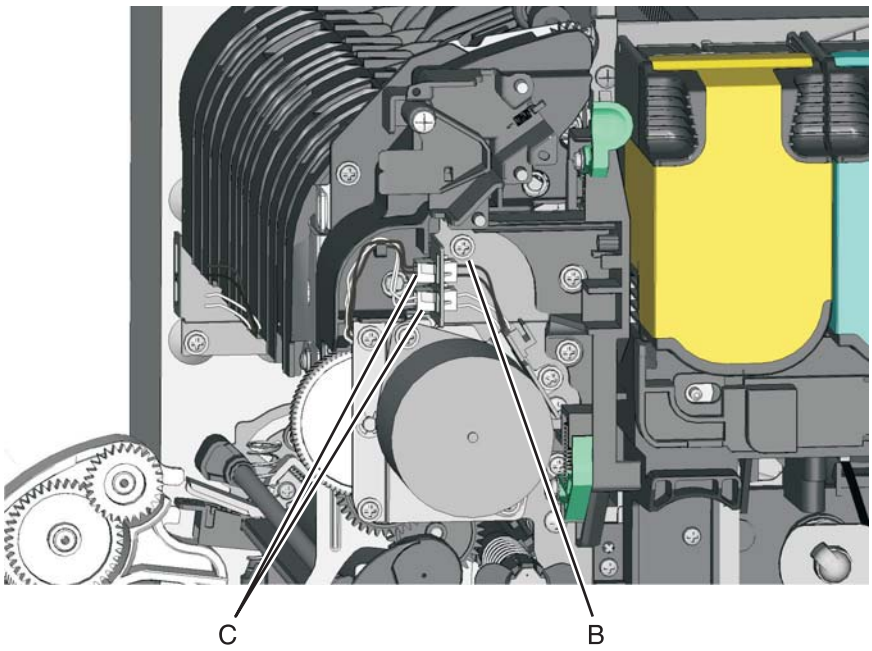
Fuser assembly removal

1. Remove the right cover. See **"Right cover removal" on page 4-7**.
2. Remove the left cover. See **"Left cover removal" on page 4-4**.
3. Disconnect the two-wire fuser cable (A) from the LVPS.
4. Position the fuser cable so that it can be pulled through from the front of the printer, and guide the cable to the front.
   Warning: Be careful not to damage the cable by pulling too hard or cutting the cable insulation.

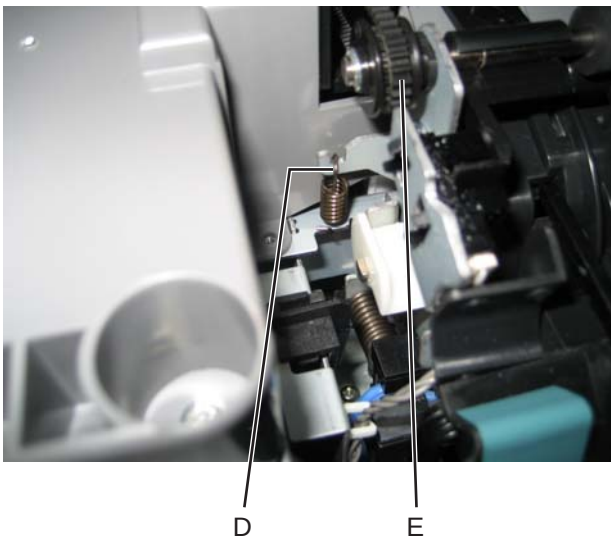


5. Remove the screw (B) on the right side of the frame.

6. Disconnect the two thermistor cables (C) from the fuser.

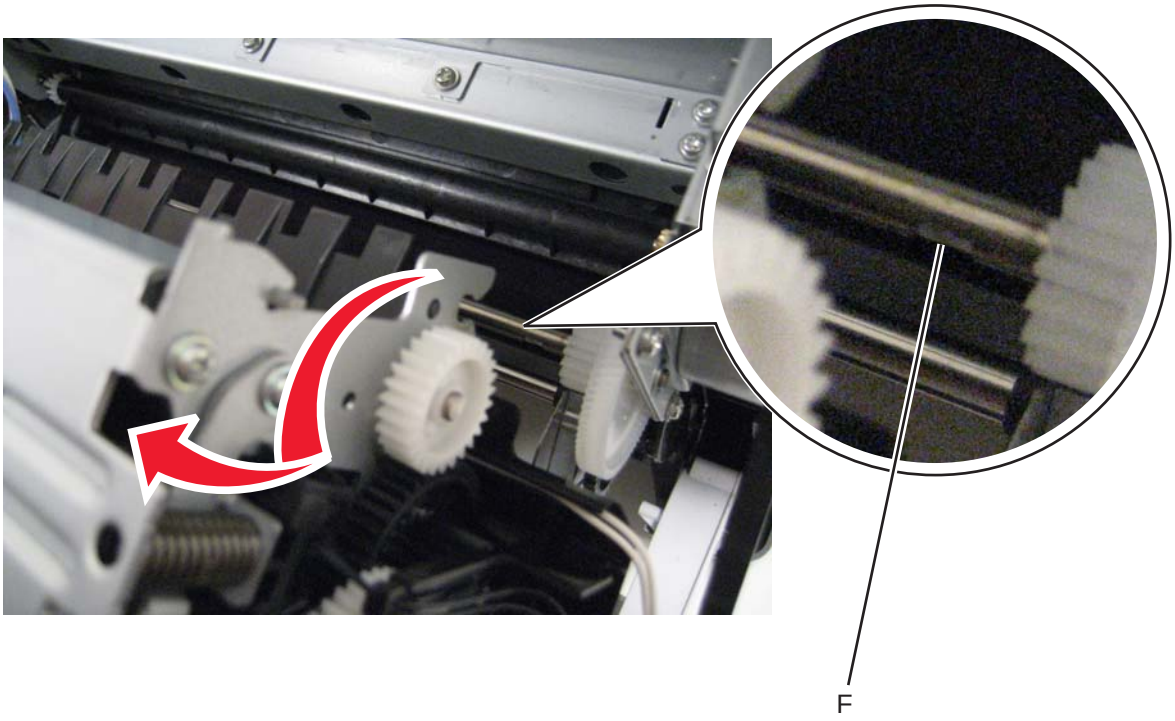


7. Unhook the springs (D) from either side of the fuser.
8. Detach the geared belt (E) from the drive pulley on the fuser exit roll shaft.
   Note: Do not remove the pulley or spacer from the shaft.



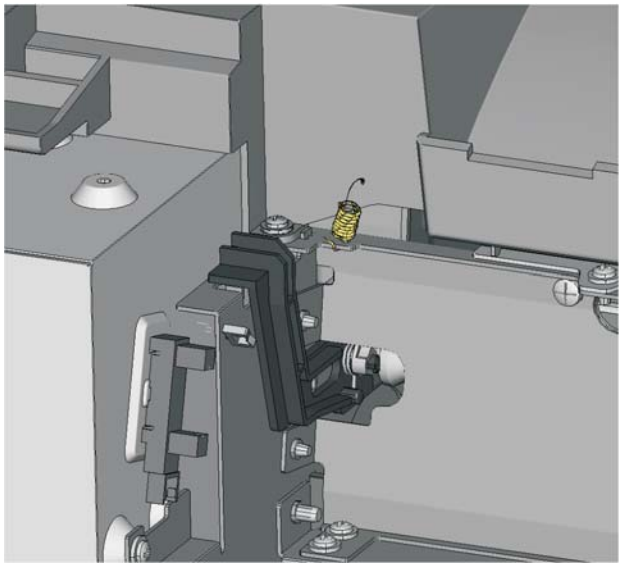
9. Rotate the top of the fuser toward the front, slide it to the left to align the fuser side frame with the flat areas of the shaft (F) and lift to remove the fuser.

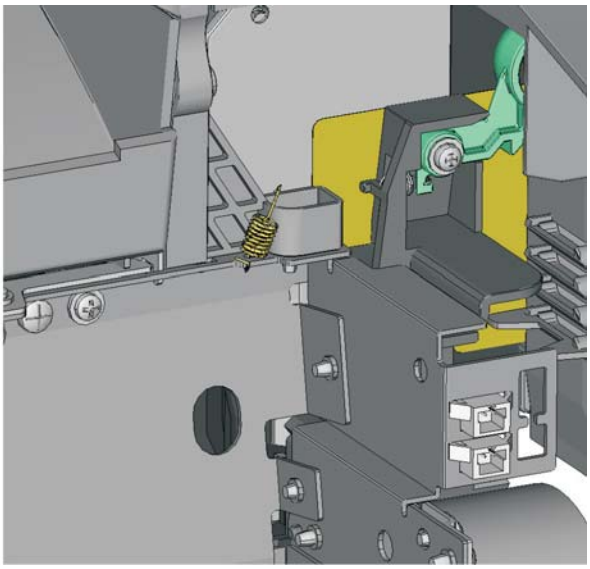
Warning: Be careful not to interfere or damage the fuser exit sensor located to the left of the fuser.



Installation notes:

- Install the narrow media sensor flag to the fuser before putting the fuser into the printer.
- Make sure the springs are resting on the top so they can be reached once the fuser is in place.

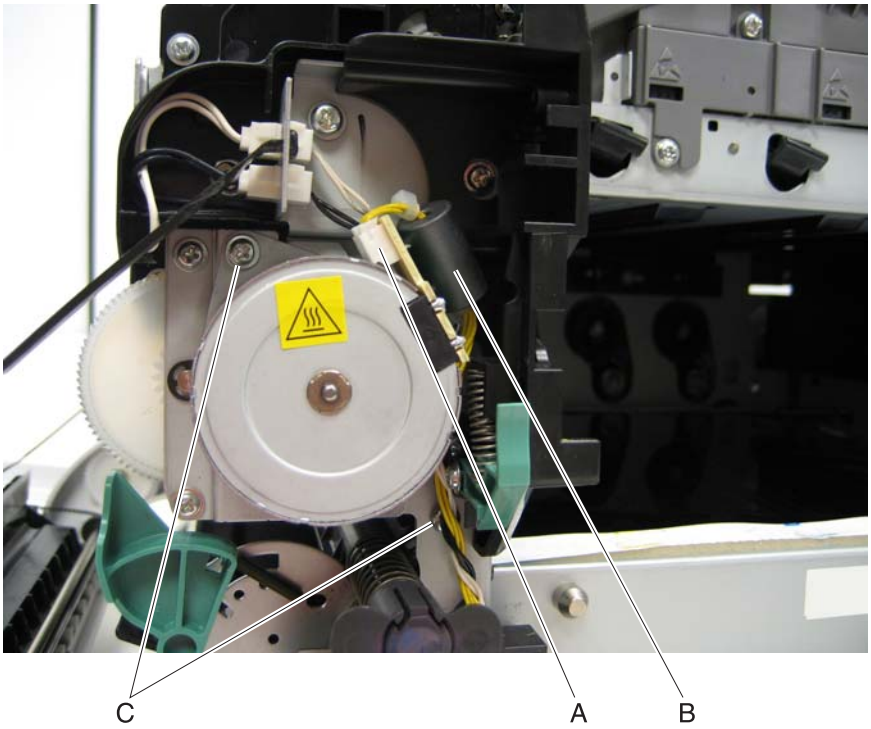




- When reinstalling on the right, make sure the gears mesh.
- Be careful not to interfere with the exit sensor on the left side.
- Reroute the cables back through their retainers.
- After replacing a new fuser, make sure to reset the Fuser Counter.
  1. POR the machine into Diagnostics mode.
     a. Turn off the printer.
     b. Press and hold **3** and **6** simultaneously.
     c. Turn on the printer.
     d. Release the buttons when the progress bar appears.
  2. Navigate to **PRINTER SETUP > Reset Fuser Cnt > Reset Fuser Cnt**.
  3. `Resetting Fuser Cnt Value` appears.

Fuser drive motor assembly removal

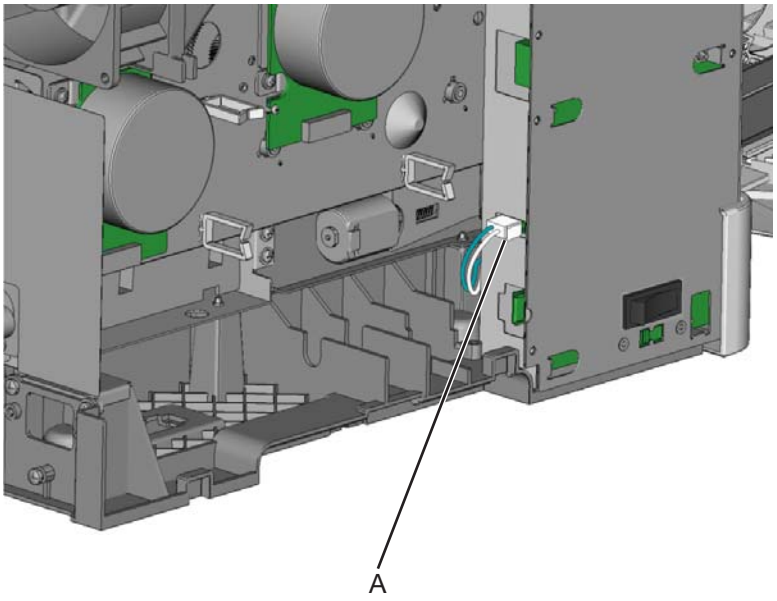
1. Open the front cover.
2. Remove the right cover. See **“Right cover removal” on page 4-7**.
3. Disconnect the cable (A) from the fuser drive motor assembly.
   Note: If the toroid (B) is removed from the cable, be sure to reinstall the toroid when reconnecting the cable.
4. Remove the two screws (C).



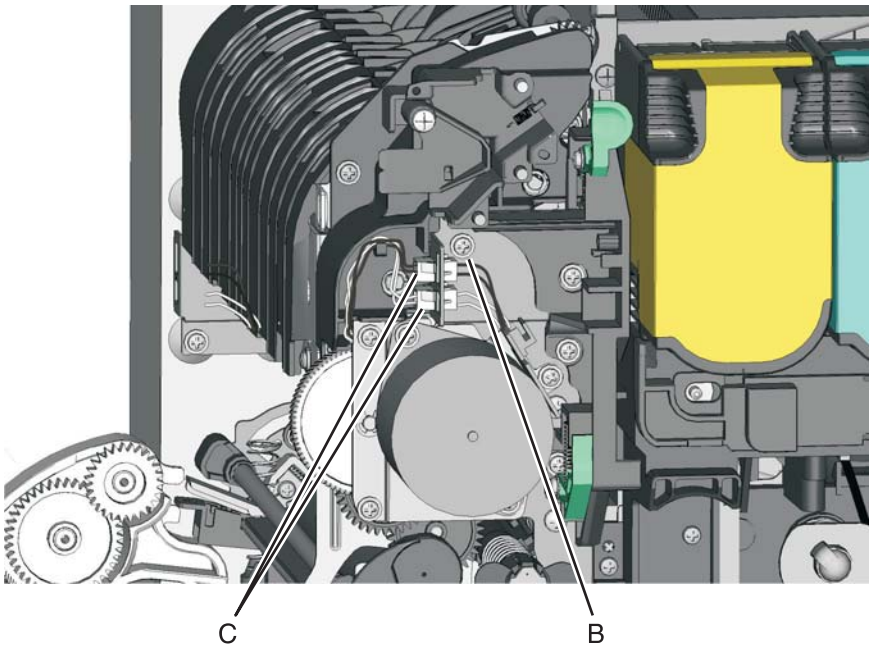
5. Remove the fuser drive motor assembly.

Fuser exit sensor removal

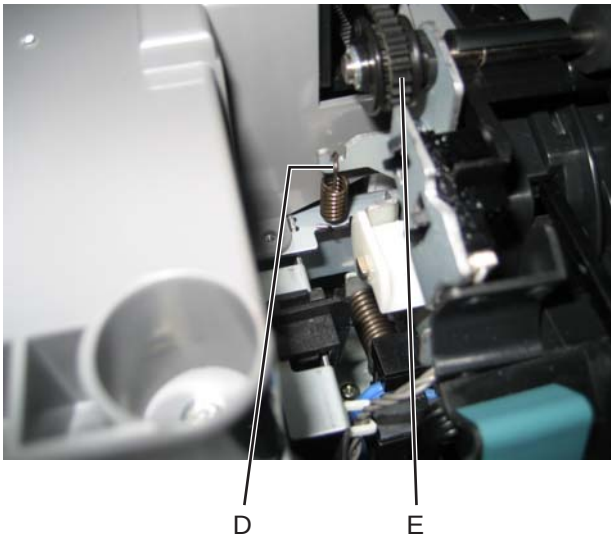
1. Open the front cover.
2. Remove the right cover assembly. See **"Right cover removal" on page 4-7**.
3. Remove the left cover. See **"Left cover removal" on page 4-4**.
4. Disconnect the two-wire fuser cable (A) from the LVPS.
   Note: You do not have to extract the cable.

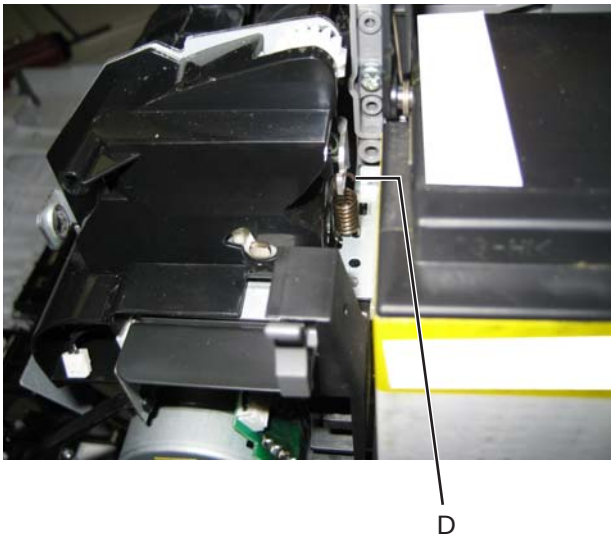


5. Remove the screw and grounding washer (B) on the right side of the frame.
   Note: Be careful not to lose the grounding washer.
6. Disconnect the thermistor cables (C).

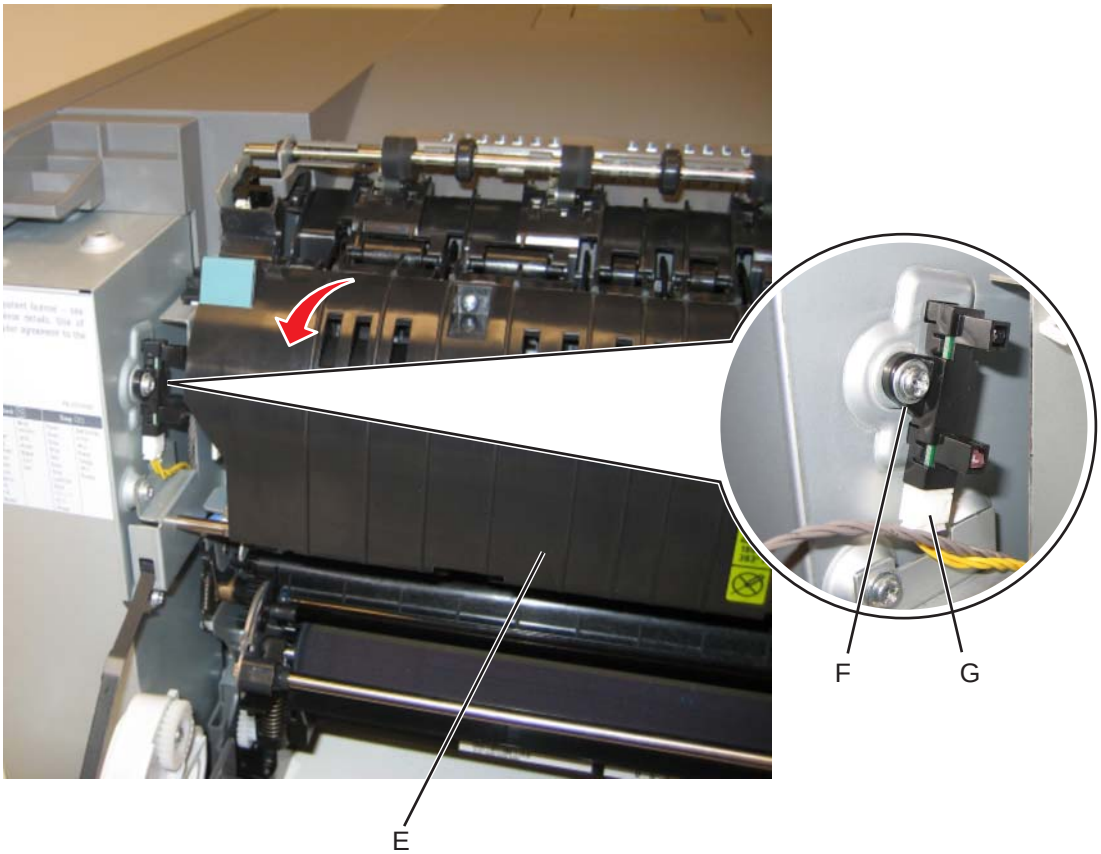


7. Disconnect the narrow medial sensor cable and remove the cable from the fuser frame. See **"Narrow media sensor flag removal" on page 4-17**.
   Note: Observe the cable routing.
8. Unhook the springs (D) from both sides of the fuser.



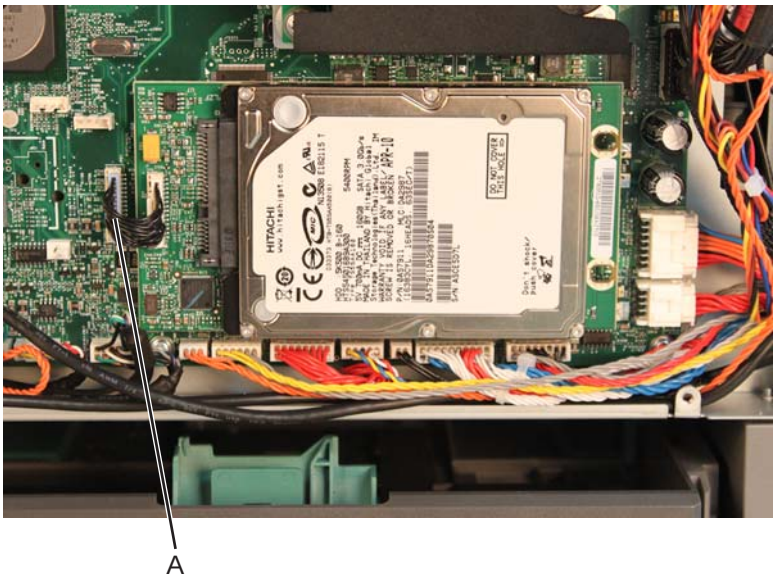


9. Rotate the fuser toward the front of the printer until the screw (E) can be accessed, and removed.
10. Disconnect the cable (G) from the fuser exit sensor.
11. Remove the screw (F) securing the fuser exit sensor.
12. Remove the lower end of the sensor with a flat-blade screwdriver, and gently pull the sensor from the frame.



Hard drive removal

1. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
2. Disconnect the hard drive cable (A) from the RIP board.



3. Pull the hard drive and remove.

High-voltage power supply (HVPS) with spring assembly removal

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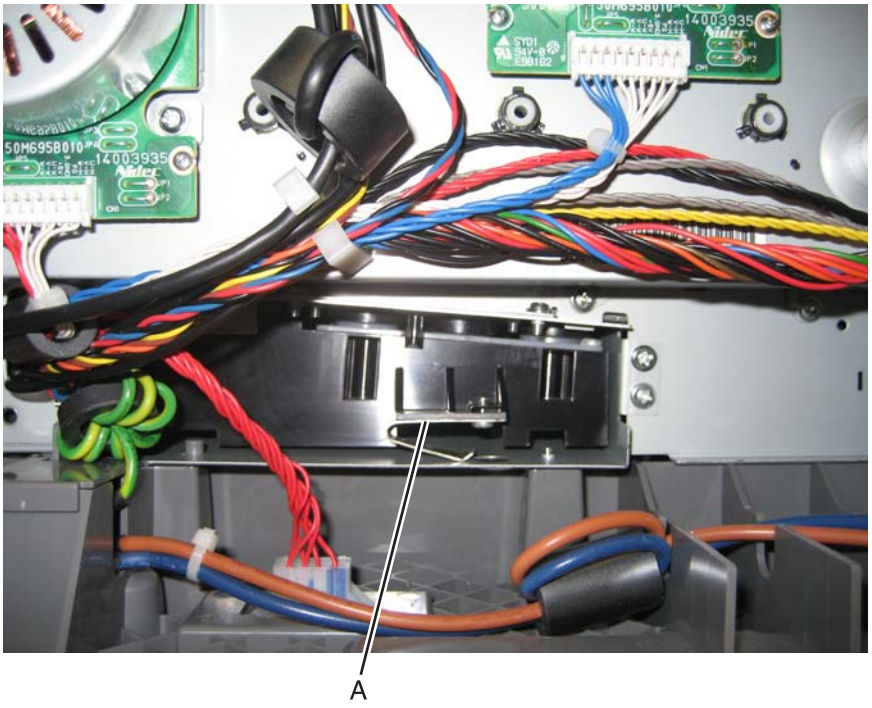
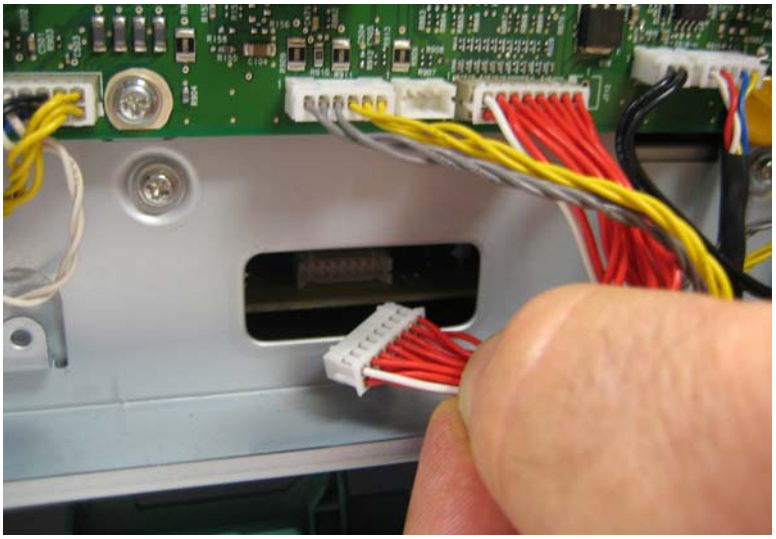
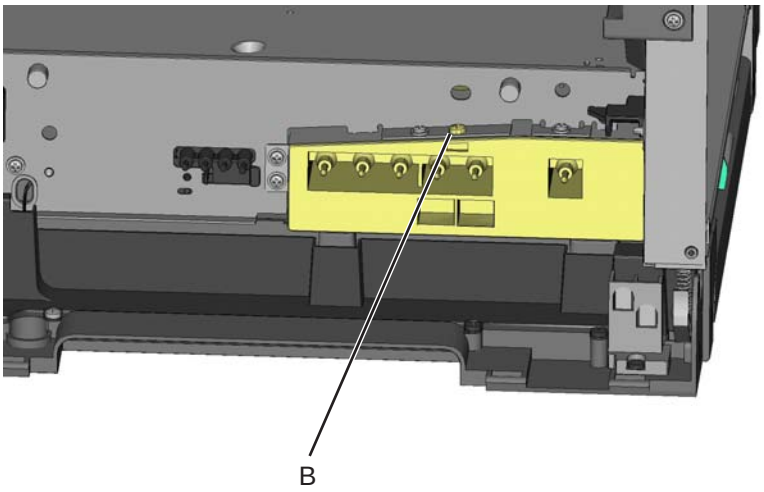
1. Remove the left cover.
   Note: There should be a leaf spring (A) biasing the HVPS upward.



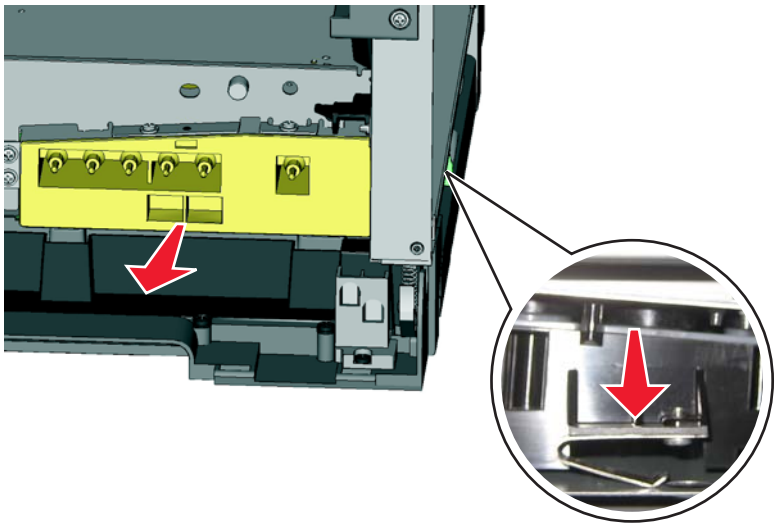
2. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
3. Remove the RIP board. See **“RIP board removal” on page 4-19**.
4. Disconnect the high-voltage power supply (HVPS) cable from the HVPS.



5. Remove the screw (B) securing the HVPS.



6. Press down on the spring mount and carefully slide the HVPS out. Release the pressure on the spring mount when the LVPS slides out about 25mm.

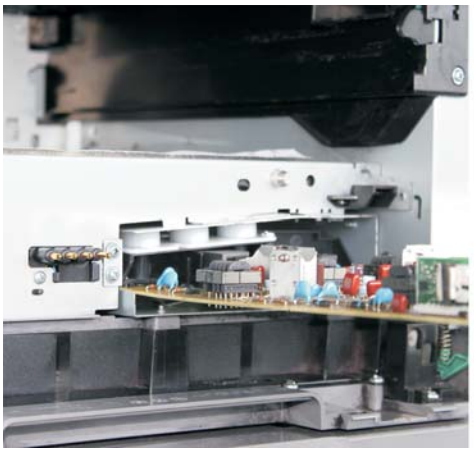


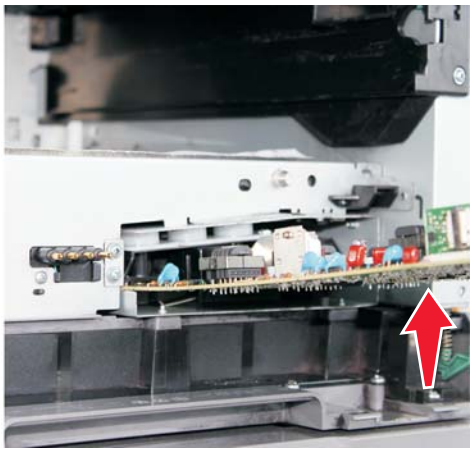
Installation notes:

	CAUTION After disconnecting the high-voltage power cable from the RIP board, always check that the HVPS connection was not loosened. Make this check anytime you are working near the HVPS cable.

Warning: Connect the high-voltage power supply (HVPS) cable to the high-voltage power supply before sliding the board into the printer. Pull the HVPS cable through the access hole and plug into the RIP board. Be careful not to dislodge the cable from the HVPS.

- When reinserting the HVPS, make sure to slightly raise the board to avoid snagging the locating pin (C) and the two protruding screws (D). Damage may occur to the components under the HVPS board if they come into contact with these points during insertion.





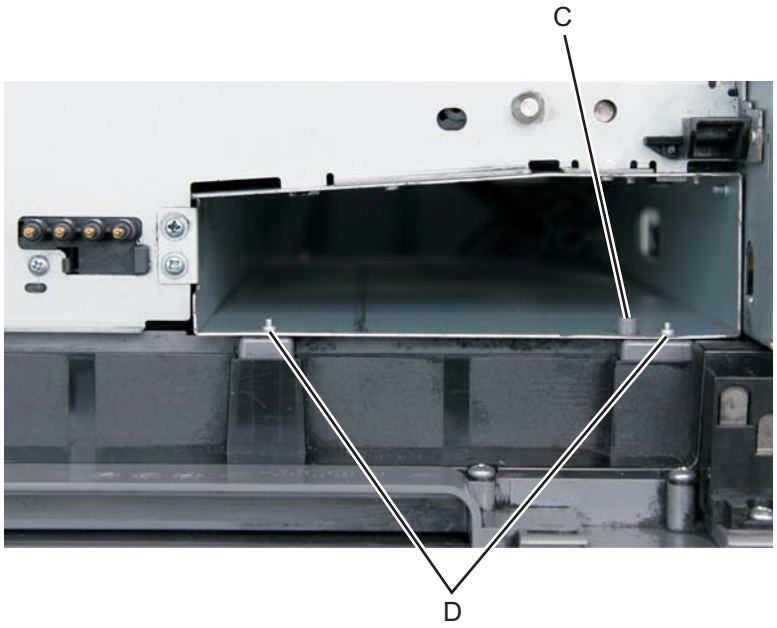


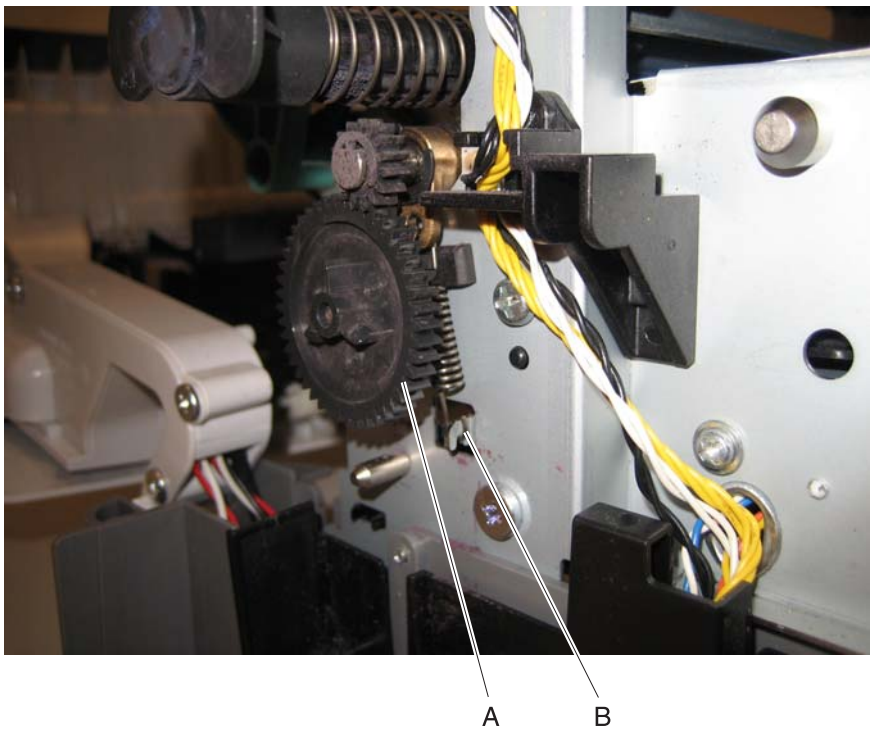
Image transfer unit (ITU) removal

1. Write down the number on the new ITU before installing it. You will need the 16-digit numeric value from the barcode after the installation, and it is easier to see at this point.
2. Remove the right cover. See **“Right cover removal” on page 4-7**.
3. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
4. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-73**.
5. Remove the imaging unit (IU). See **“Imaging unit (IU) removal” on page 4-63**.

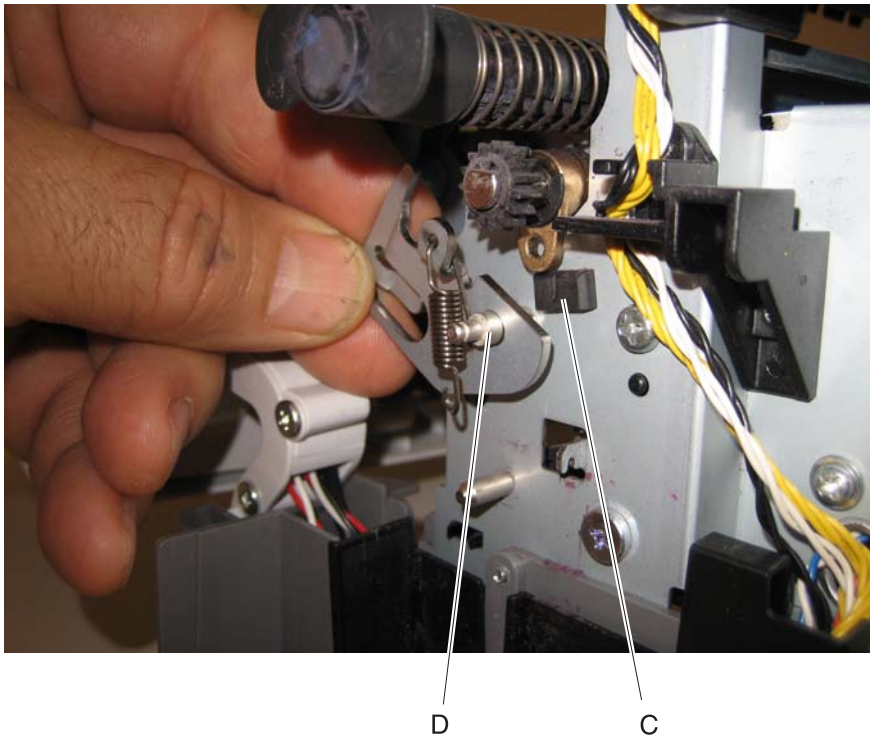
   Note: The ITU FRU includes a spring clamp kit. If the printer does not have this kit installed, perform the following steps to prepare for the later installation. Continue below with **“ITU without spring clamp kit removal” on page 4-43**. If the spring clamp kit is not installed, skip to **“Continuing the removal (with or without spring clamp kit)” on page 4-45**.

ITU without spring clamp kit removal

1. Pull the gear (A) straight out to unsnap it, and then discard it. A new gear is included in the spring clamp kit and must be used with the new spring clamp.

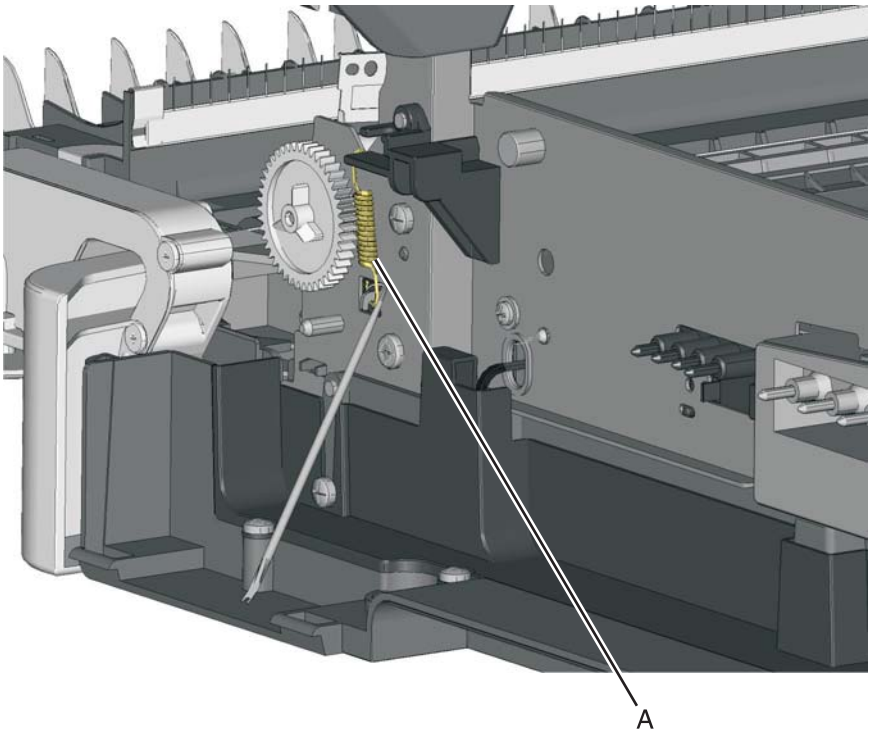


2. Remove the rubber pad (C).
3. Place the spring clamp onto the shaft (D).
4. Snap the new gear onto the shaft (D). The installation is the same as the old gear.

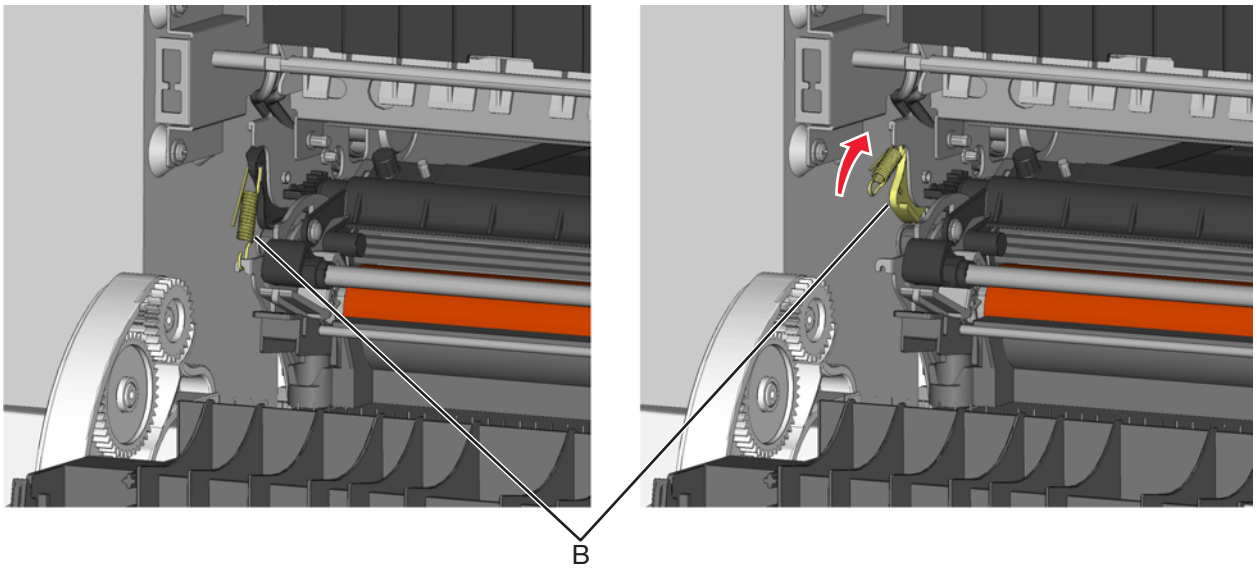


Continuing the removal (with or without spring clamp kit)

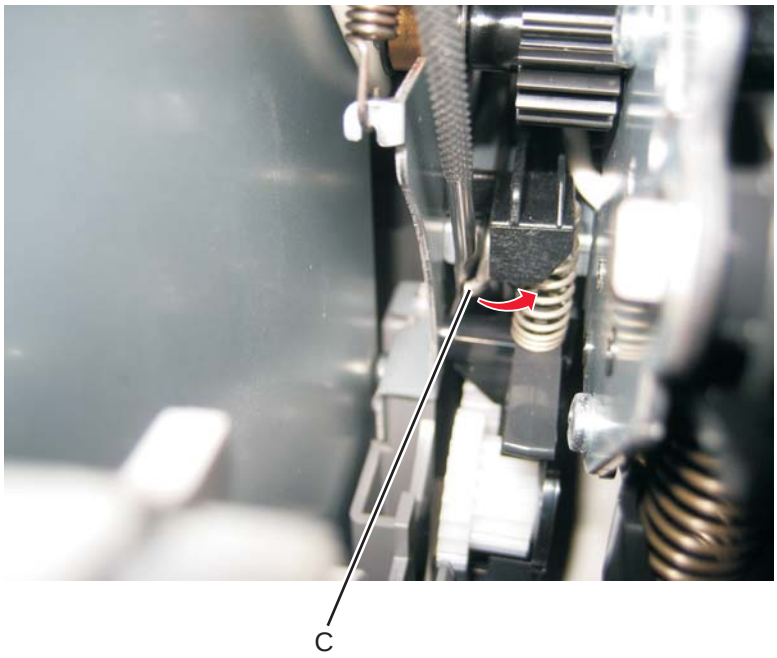
1. Disconnect the one spring (A) from the side frames, leaving them attached to the ITU or spring clamp.



2. Rotate the left spring (B) and pivot the cam away from the ITU so the spring is held out of the ITU path.



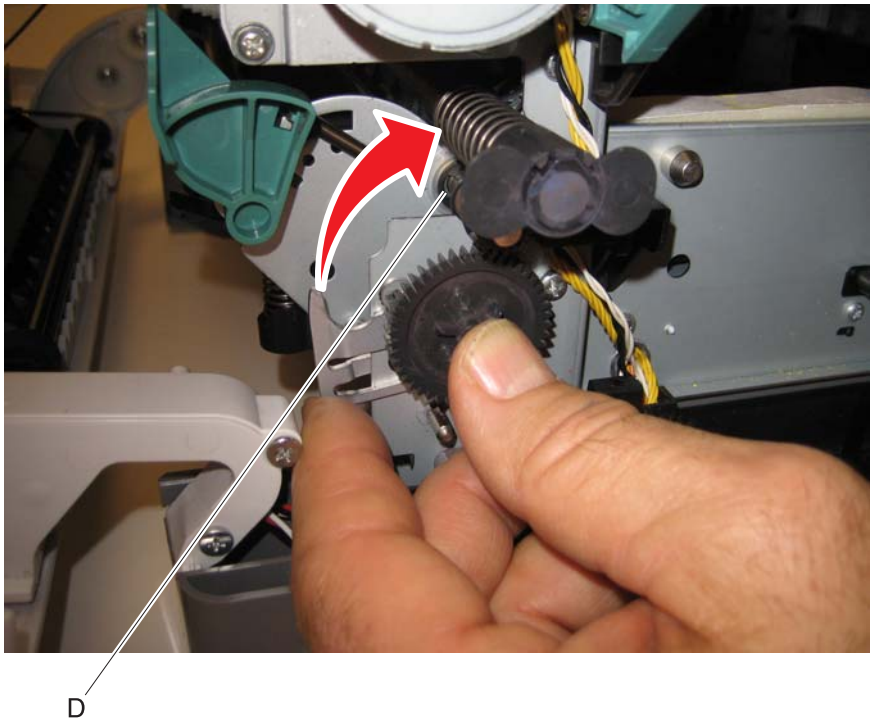
3. Rotate the release lever (C) in a counter clockwise direction with a spring hook or needlenose pliers to decouple the ITU while pulling the ITU toward the front.



4. Hold the release lever while removing the ITU.

Installation notes:

- Write down the 16-digit numeric value of the new FRU before you begin to install it.
- You may have to rotate the release lever again to install the new ITU.
- Rotate the spring clamp so it hooks over the new ITU (D).
  Note: The spring should be on the right side of the gear shaft.

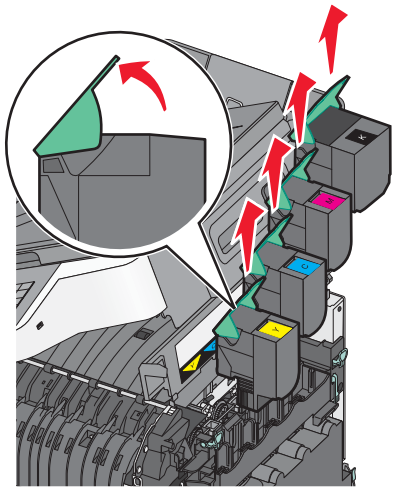


- After replacing the ITU, be sure to enter the 16-digit numeric value of the new ITU:
  1. Enter the Diagnostics Menu:
     a. Turn off the printer.
     b. Press and hold **3** and **6**.
     c. Turn on the printer.
     d. Release the buttons when the progress bar appears.
  2. Navigate to **PRINTER SETUP > ITU Barcode.**
  3. Enter the 16-digit value.
  4. Touch **Submit** to save the changes.
  5. `CHECK SUM DOES NOT MATCH` appears if the value entered is incorrect. Check and re-enter the value.

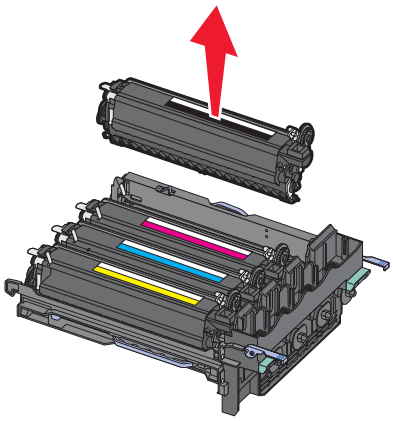
Developer unit removal

The developer units are not FRUs.

1. Raise the scanner unit, and remove the toner cartridges.



2. Remove the imaging unit. See **"Imaging unit (IU) removal"**.
   Warning: Do not touch the underside of the imaging unit. This could damage the developer units.
3. Remove the developer unit you need.



Low-voltage power supply (LVPS) assembly removal

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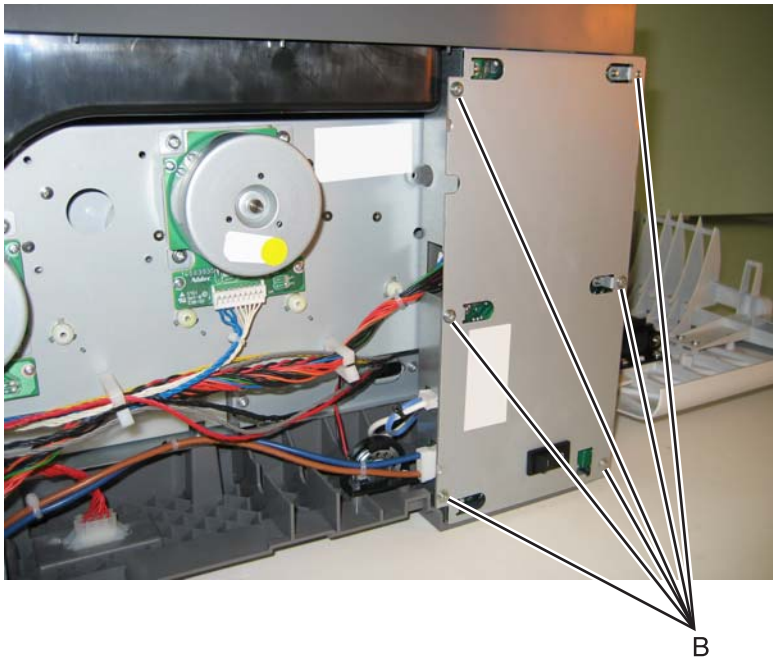
1. Remove the left cover. See **“Left cover removal” on page 4-4**.
2. Disconnect the three cables (A) from the LVPS.

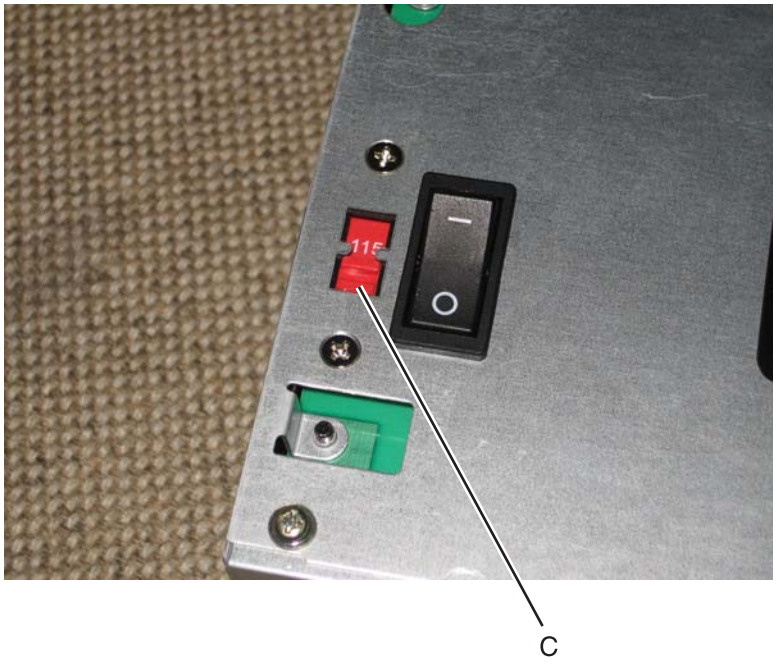
3. Remove the six screws (B) and the ground cable connected to the LVPS cage.



4. Remove the LVPS.

Warning: If you receive a new low-voltage power supply with a voltage selector switch (C), be sure to set the switch to the correct setting for your voltage requirements before installing the low-voltage power supply. The switch can be set for either 115 V or 230 V. Failure to do so will result in damage to the power supply.

Note: Some LVPS FRUs are auto-sensing and do not have the switch, even though the opening may still be present in the shield.

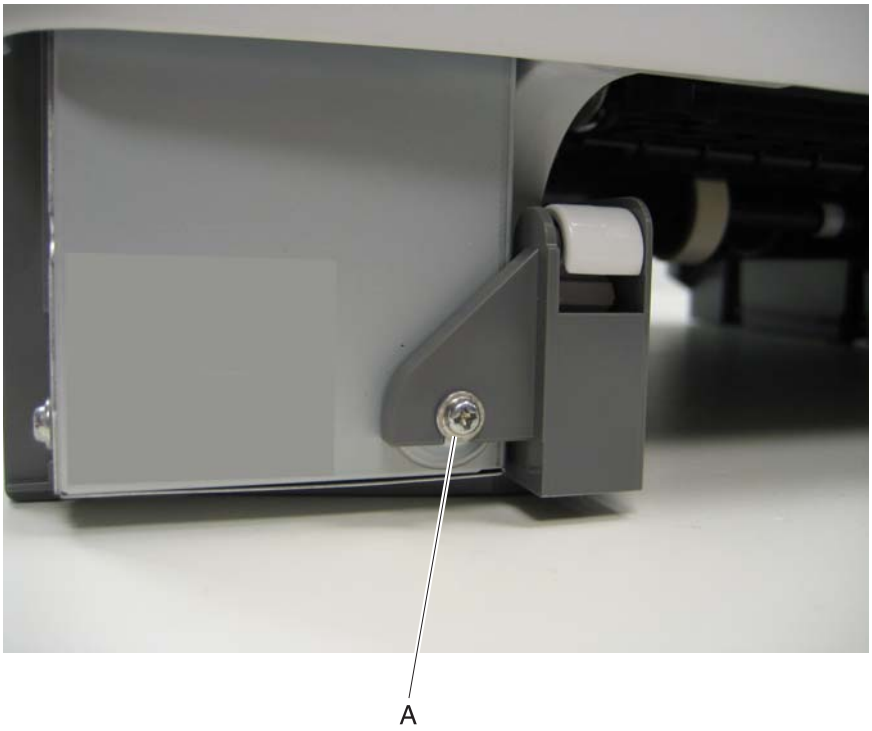


Left lower frame and right lower frame removal

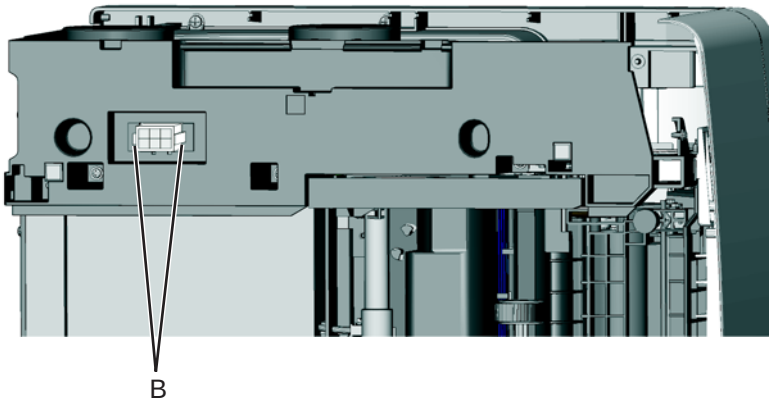
The left lower frame and right lower frame are in the same FRU.

Left lower frame

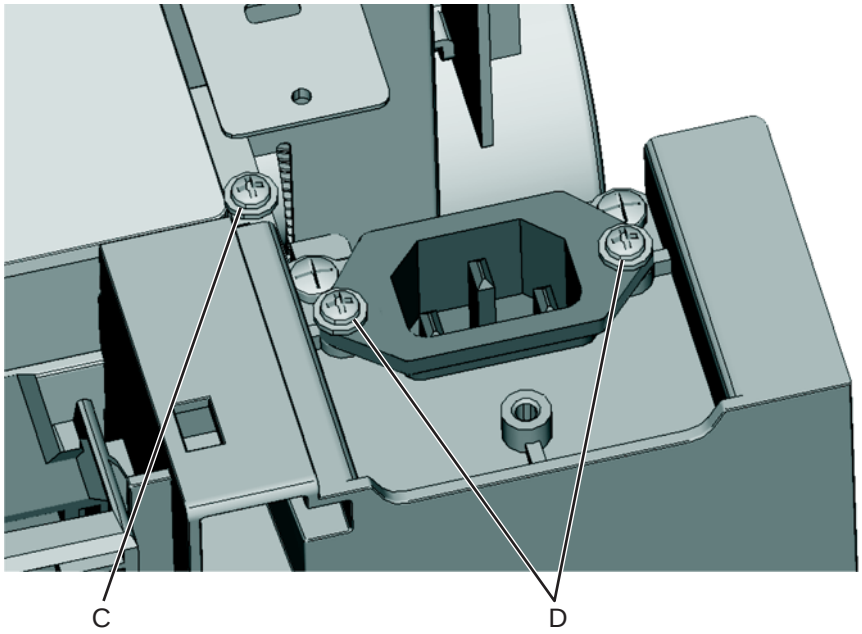
1. Remove the media tray, and remove the screw (A) in front.



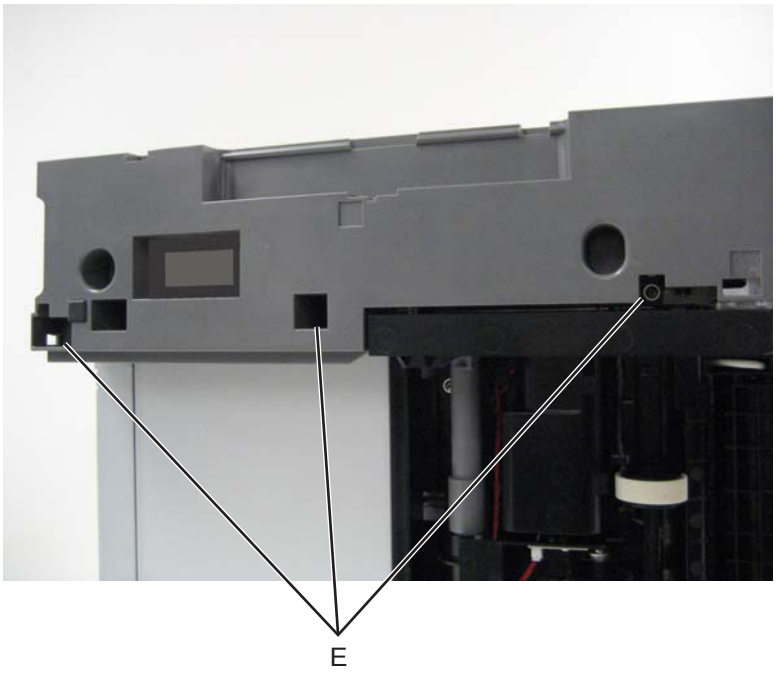
2. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-73**.
3. Remove the imaging unit. See **“Imaging unit (IU) removal” on page 4-63**.
4. Remove the low-voltage power supply. See **“Low-voltage power supply (LVPS) assembly removal” on page 4-48**.
5. Place the printer on the right side.
6. Remove the tray 2 connector (B) by squeezing the tabs and lowering the connector into the printer.



7. At the rear of the printer, remove the ground screw (C) and two screws (D) from the AC receptacle.

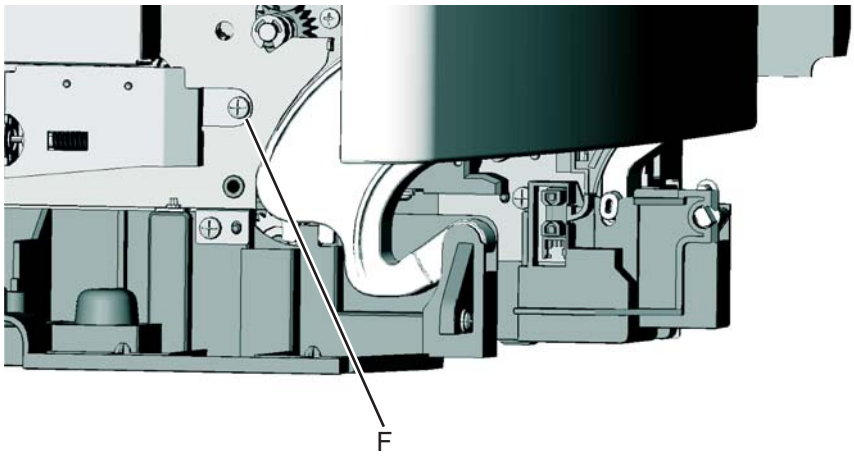


8. Remove the three screws (E) securing the left lower frame.

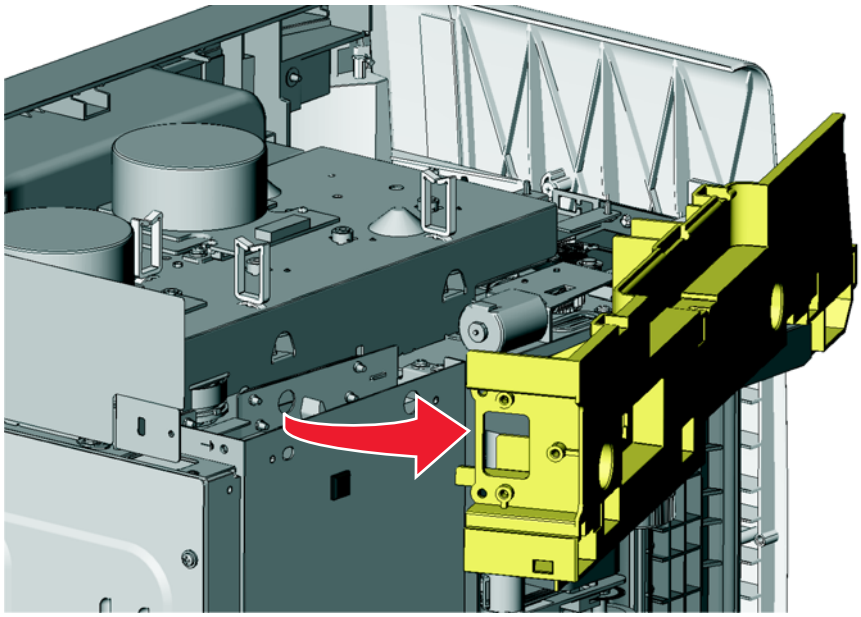


9. Remove the LVPS. See **“Low-voltage power supply (LVPS) assembly removal” on page 4-48**.

10. Remove the screw (F) on top of the frame.



11. Swing the left lower frame away from the printer, and remove.

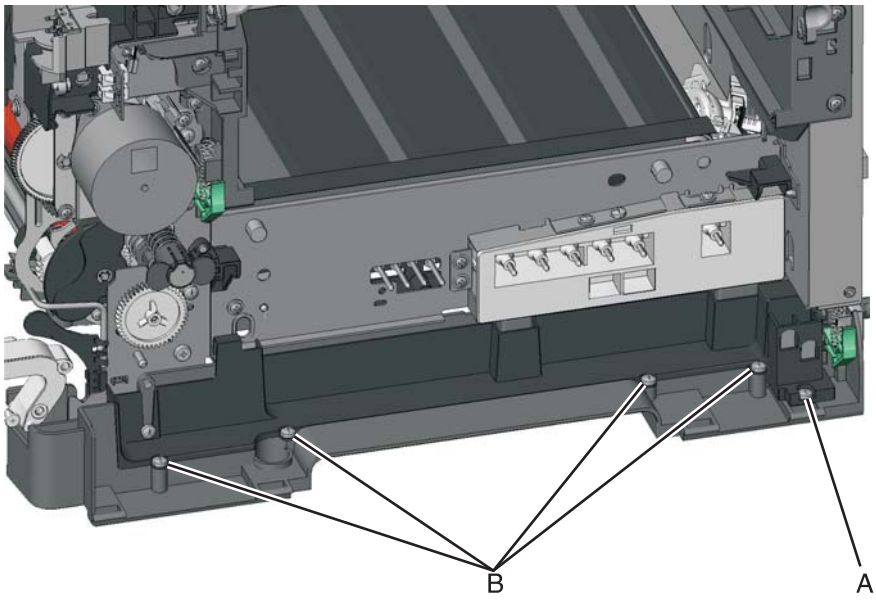


Right lower frame

Note: Remove the duplex sensor, the tray present sensor, the spring, spring holder, and the wireless antenna plate which are not part of the right and left lower frames. The cable cover is part of the right lower frame FRU.

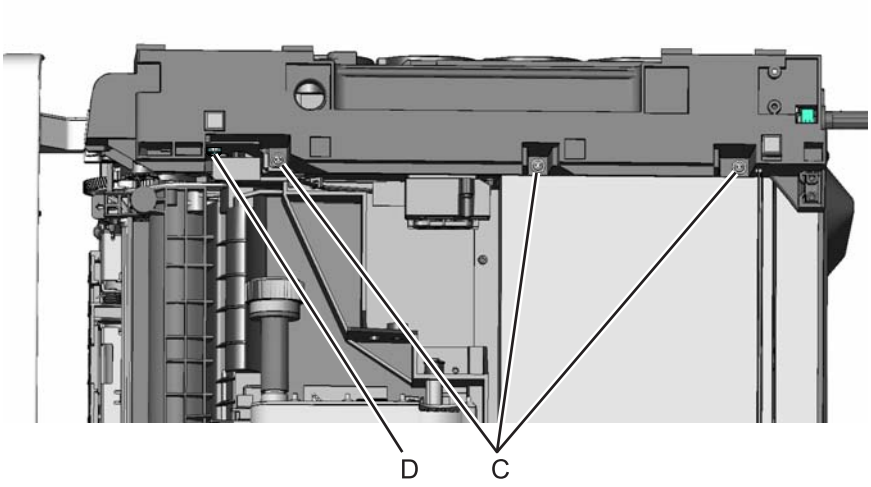
Note: To properly reinstall the duplex sensor and the tray present sensor, also order two sensor retaining plates.

1. Open the front cover.
2. Remove the right cover assembly. See **"Right cover removal" on page 4-7**.
3. Remove the waste toner bottle. See **"Waste toner bottle removal" on page 4-73**.
4. Remove the imaging unit. See **"Imaging unit (IU) removal" on page 4-63**.
5. Remove the rear shield. See **"Rear shield removal" on page 4-7**.
6. Remove the rear screw (A) in the waste toner bottle sensor contact to allow access to the cable cover.
   Note: The waste toner bottle sensor contact does not need to be unplugged or removed.
7. Remove the four screws (B) securing the cable cover.
   Note: The cable cover is part of the right lower frame FRU.

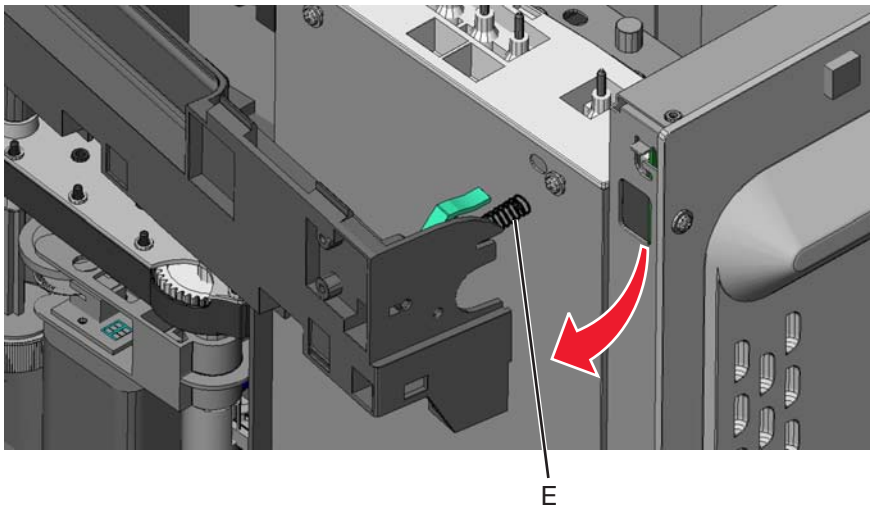


8. Carefully place the printer on its left side.
9. Remove the sensor. See **"Duplex sensor removal" on page 4-29**.

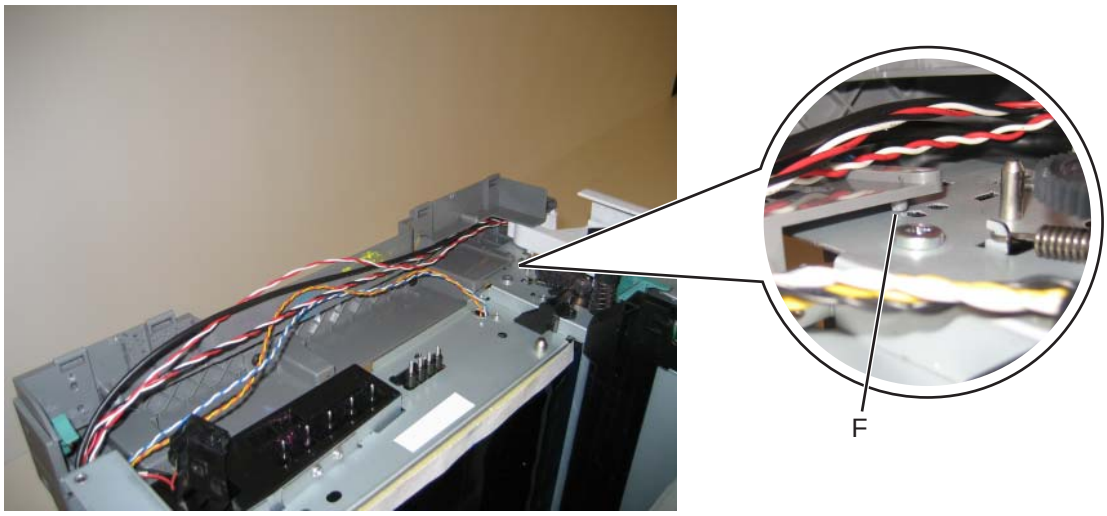
10. Remove the three screws (C) securing the lower right frame to the printer.
11. Remove the screw (D) close to the front of the printer.



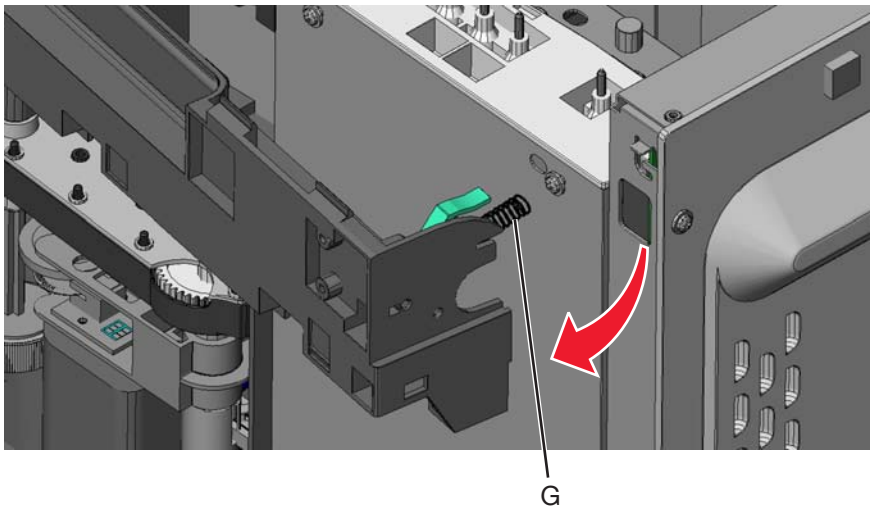
12. Swing the rear part away from the printer to access the spring, and remove the spring (E) from the right lower frame.



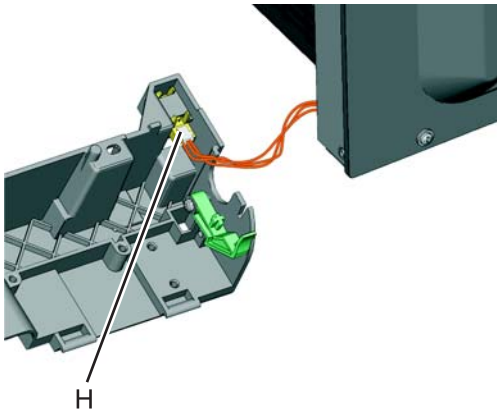
13. Lift the right lower frame pin (F) out of the hole in the printer frame.



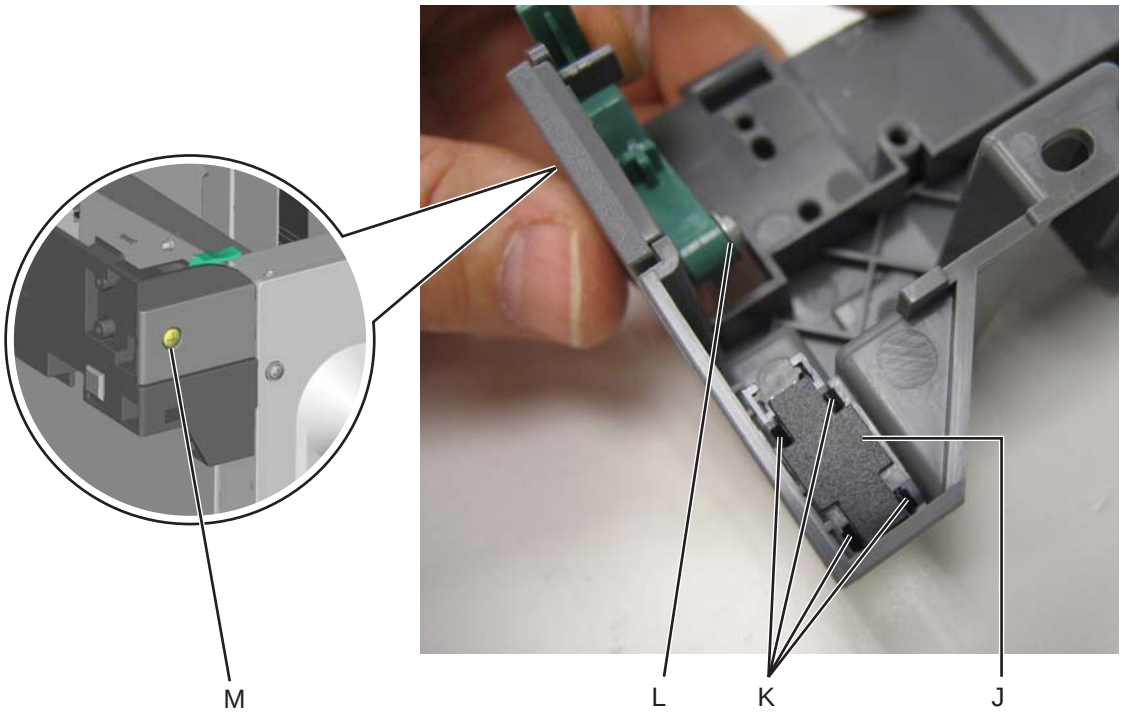
14. Swing the rear part away from the printer to access the spring (G), and remove it from the right lower frame.



15. Disconnect the cable (H) from the tray present sensor.



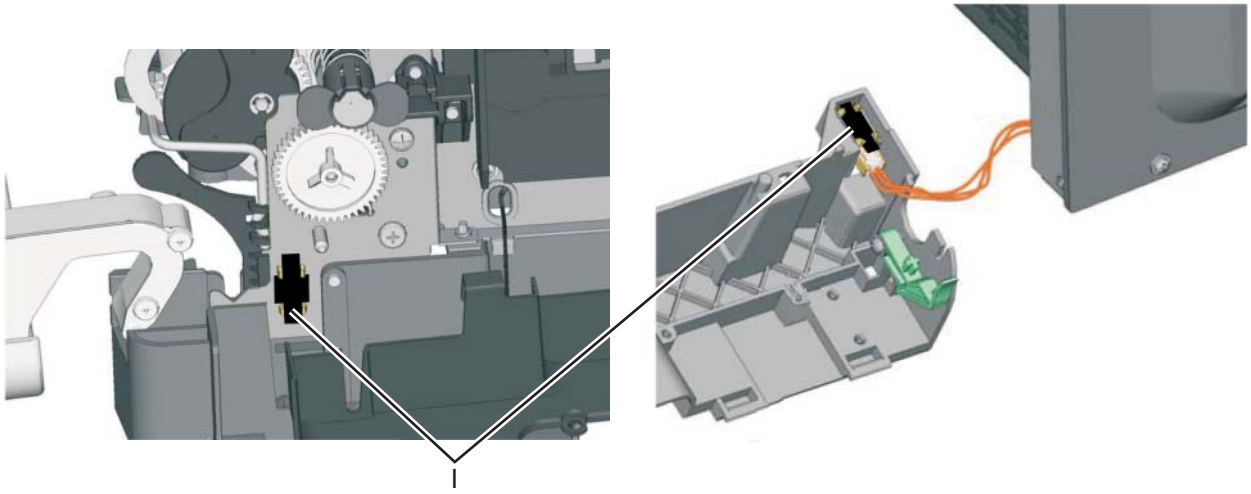
16. Swing the rear of the lower frame away from the printer, and remove the right lower frame.
    Note: There are parts in the right lower frame that are not included in the frame. The following instructions show how to remove them.
17. Remove the sensor retaining plate (J), and press the latches (K) together to remove the tray present sensor.
18. Remove the screw (L) and remove the spring bracket.
19. Remove the screw (M), and remove the plate from your printer if it does not have a wireless antenna.



Installation notes:

1. Reinstall the spring bracket, and the wireless antenna plate (or the blank plate, if this is not a wireless model).
2. Clean the contact surface where you removed the sensor retaining plates, or where you need to install the new ones.
3. Install the sensors.

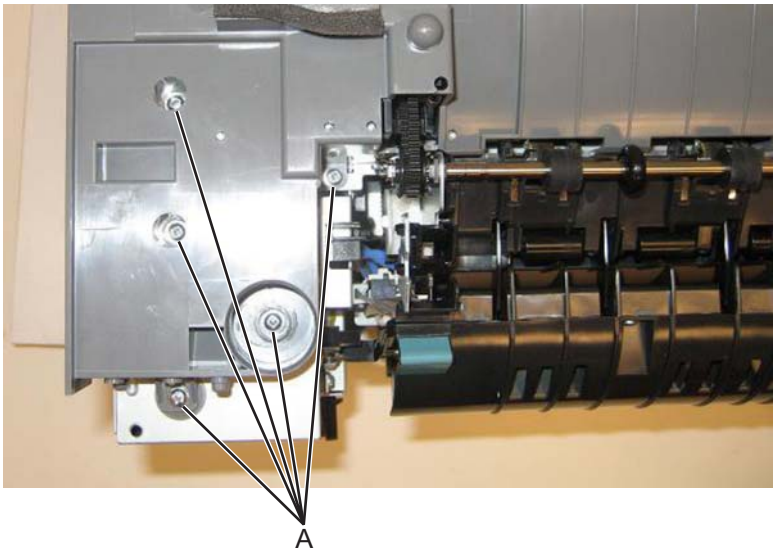
4. Remove the backing from the new plates, and place them on the surfaces (A) between the sensor mounting posts.
   Note: Make sure the clips on the posts extend onto the surface of the plate.



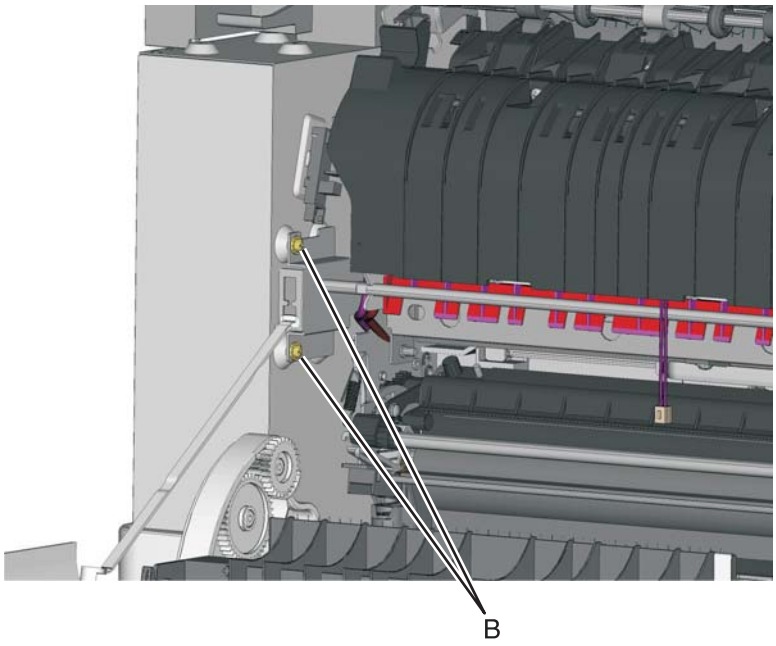
5. Connect the cable to the tray present sensor, and put the spring in place before installing the right lower frame.

Main drive gear assembly with motor removal

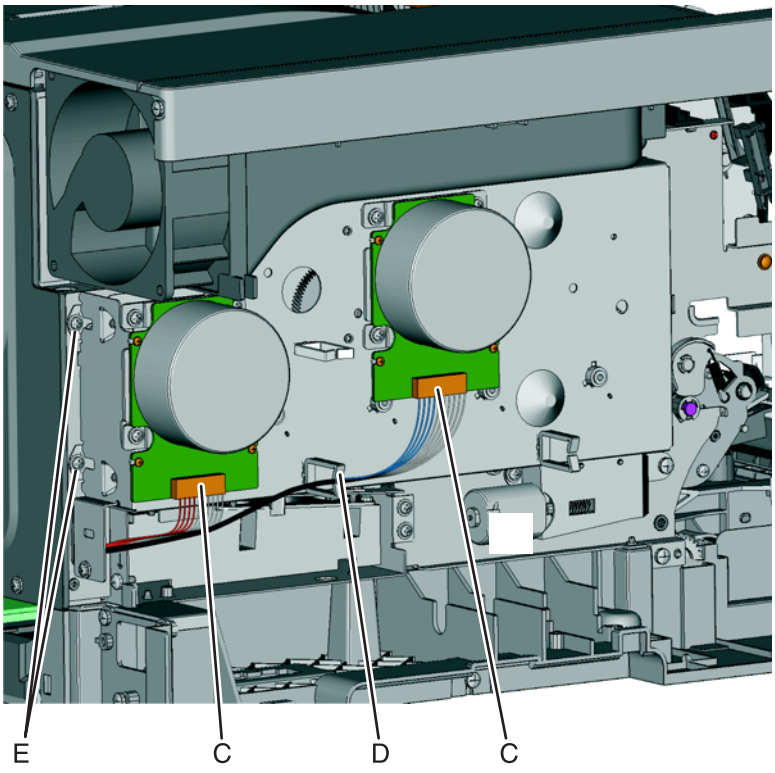
1. Remove the left cover. See **"Left cover removal" on page 4-4**.
2. Remove the LVPS. See **"Low-voltage power supply (LVPS) assembly removal" on page 4-48**.
3. Remove the five screws (A) on the top cover.



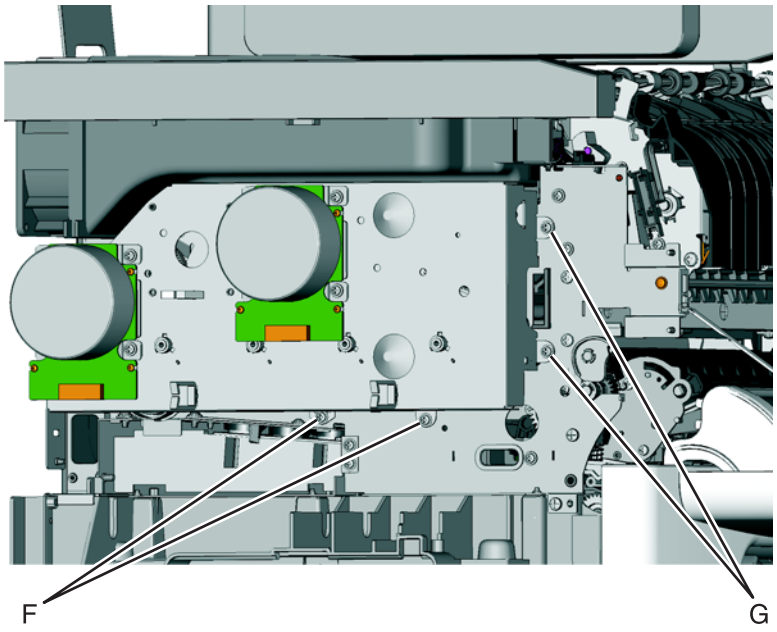
4. Remove the two screws (B) from the inner left side.



5. Disconnect the cable from the fuser exit sensor.
6. Remove the screws securing the LVPS shield.
7. Unplug the cables (C) from the motors, and remove all cables from the retainer (D).
   Note: Pay attention to the cable routing for reinstallation.
8. Remove the two screws (E) from the rear.



9. Remove the two screws (F) from below the main drive gear assembly.
10. Remove the two screws (G) from the right of the main drive gear assembly.



11. Lift the main drive gear assembly with motor, and remove.

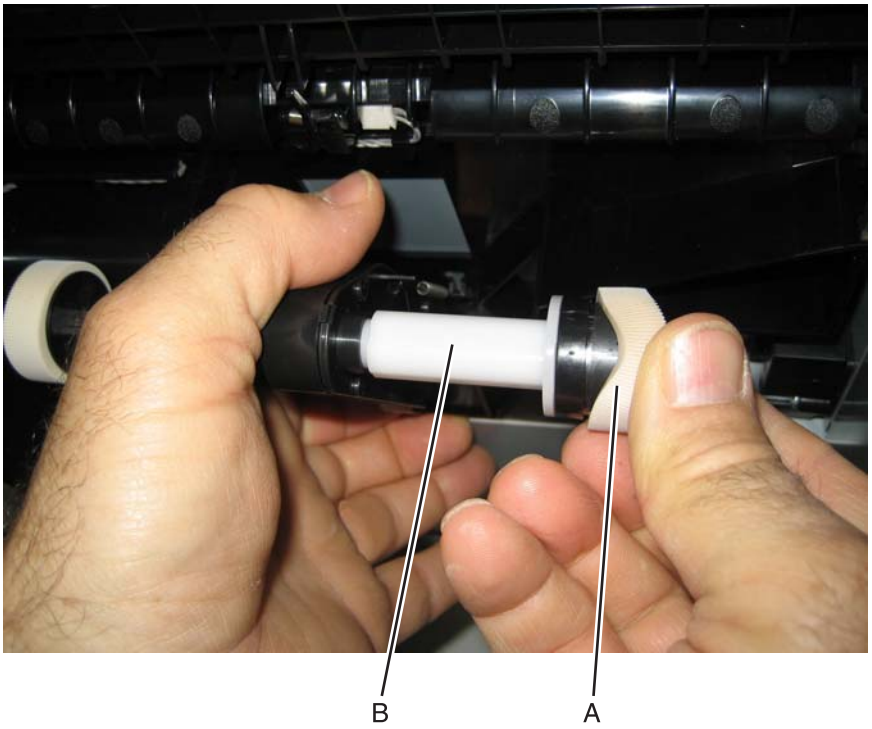
Pick tires removal—integrated 250-sheet media tray

Note: You will need to have a soft, padded work surface.

Warning: Remove only the rubber tires and not the paper pick tire assembly to avoid losing small parts.

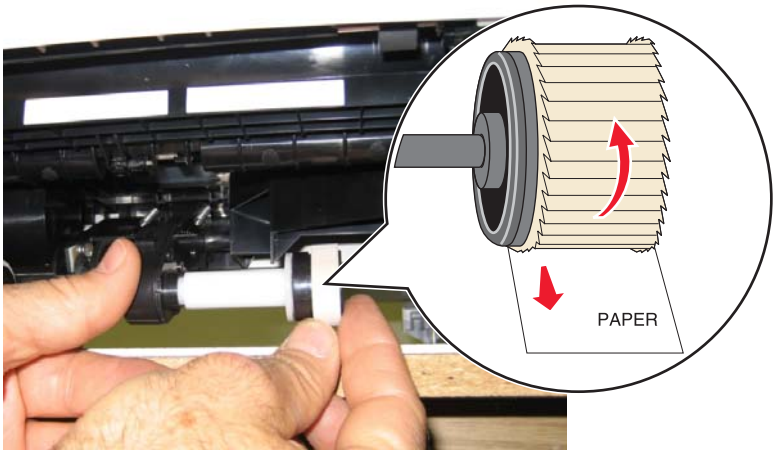
The paper pick tires are located in the base printer. There are also tires in the optional 550-page media tray. If you have this additional option, and you are having problems with media picking, replace these tires also. Always replace the paper pick tires in pairs. The tires come in a package of two.

1. Remove the media tray.
2. Place the printer so the front edge extends over the edge of the table or desk.
3. Lower the autocompensator mechanism.
4. Remove the rubber tires (A) from the pick roll assembly (B). Repeat for the other tire.
   Warning: Be very careful **not** to unlatch the right side hub, or the clutch may be damaged. If the ball bearings come out of the clutch, it will have to be reassembled on a flat surface.



Installation notes:

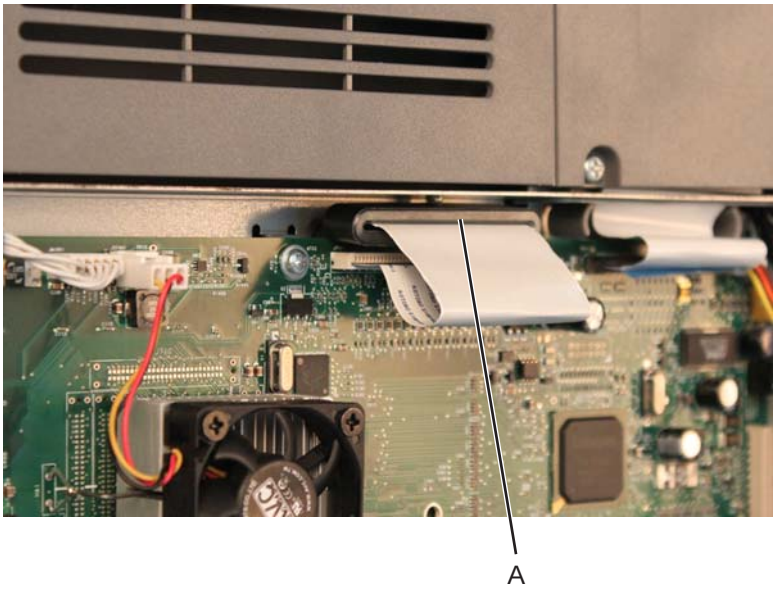
Install the new rubber tires with the surface texture turning in the direction as shown.



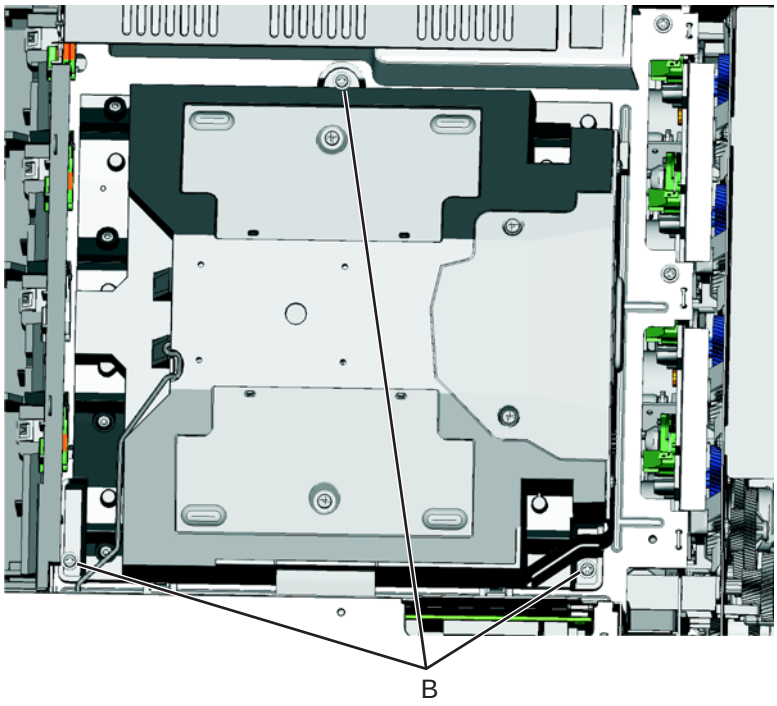
Note: Feel each rubber surface to verify it turns properly in the direction shown.

Printhead removal

1. Remove the scanner assembly. See**"Flatbed removal" on page 4-75**.
2. Remove the top cover. See **"Top cover assembly removal" on page 4-9**.
3. Disconnect the cables.
4. Remove the printhead cable toroid (A) from the flat cable.
   Note: Tuck the printhead cable toroid as shown below when reinstalling. Failure to do so can damage the RIP board.



5. Remove the three screws (B).



6. Remove the printhead.

Installation note:

When the printhead is replaced, perform the registration (black planes) and alignment (color planes). See **“REGISTRATION” on page 3-9** and **“Alignment Menu” on page 3-11**.

Imaging unit (IU) removal

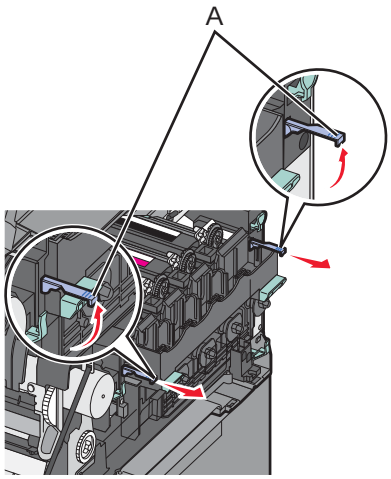
The imaging unit is customer replaceable unit and not a FRU.

Note: The imaging unit contains:

- Photoconductor unit
- Developer units

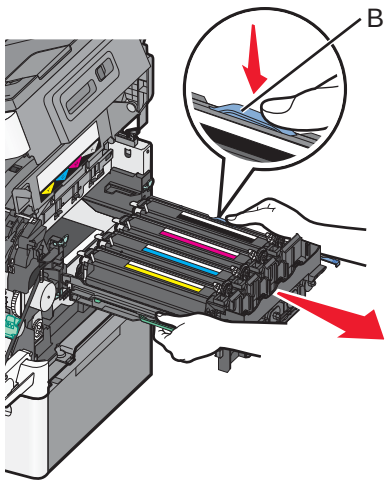
To remove only the photoconductor, remove the entire imaging unit, remove the developer units, place the original developer units in the new photoconductor, and reinstall the imaging unit. When you replace the imaging kit, you are replacing *both* the photoconductor and the developer units.

1. Open the front cover.
2. Lift the scanner unit by sliding the latch to the left.
3. Remove the right cover assembly. See **"Right cover removal" on page 4-7**.
4. Remove the waste toner bottle. See **"Waste toner bottle removal" on page 4-73**.
5. Remove the toner cartridges.
6. Lift the two latches (A) to unlock the imaging unit. Pull the two latches until the imaging unit meets resistance.



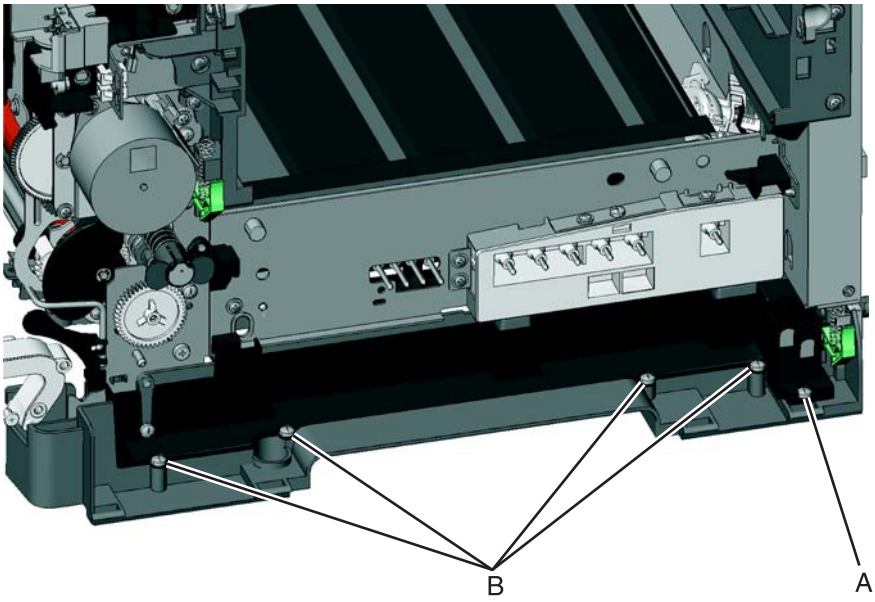
7. Press and hold the handles (B), and pull the imaging unit straight out.
   Warning: When pulling the imaging unit out, grab only the release levers (B). Do not touch the photoconductors at the bottom of the imaging unit.

   Note: Store the imaging unit in a dark place, or cover it with a blanket.

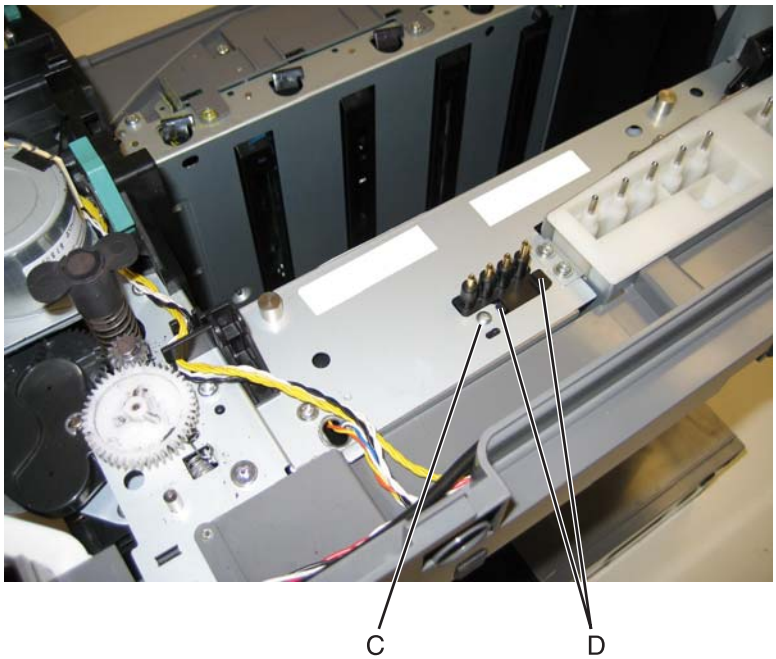


Toner cartridge contacts removal

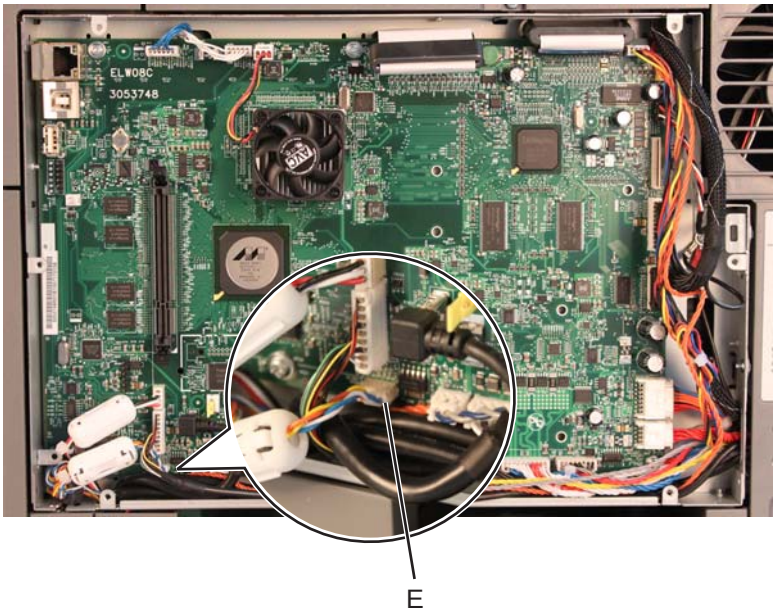
1. Remove the right cover assembly. See **“Right cover removal” on page 4-7**.
2. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-73**.
3. Remove the imaging unit. See **“Imaging unit (IU) removal” on page 4-63**.
4. Remove the rear cover. See **“Right cover removal” on page 4-7**.
5. Remove the rear screw (A) in the waste toner bottle sensor contact to allow access to the cable cover.
   Note: The waste toner bottle sensor contact does not need to be unplugged or removed.
6. Remove the four screws (B) securing the cable cover.



7. Turn the printer on the left side.
8. Remove the screw (C) securing the spring contacts.
9. Release the tabs (D) on the spring contact to release the spring contacts.



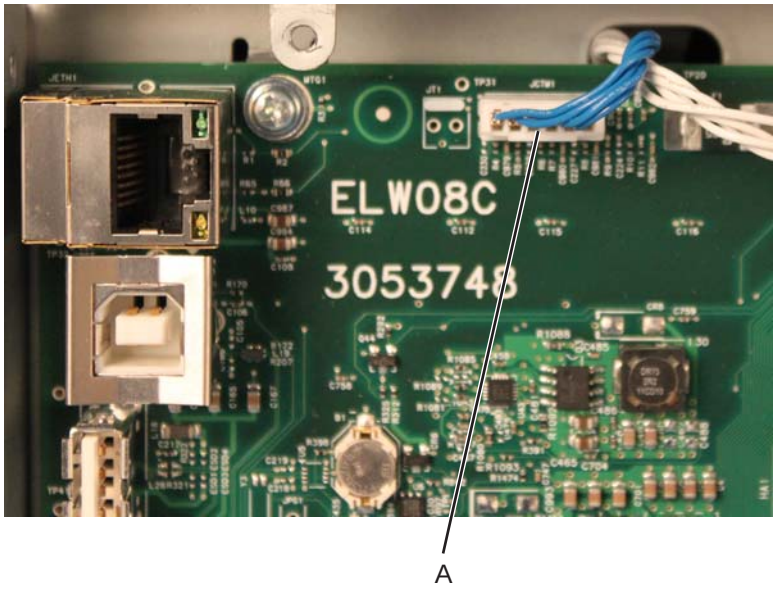
10. Disconnect the cable (E) from the RIP board at JSC1.



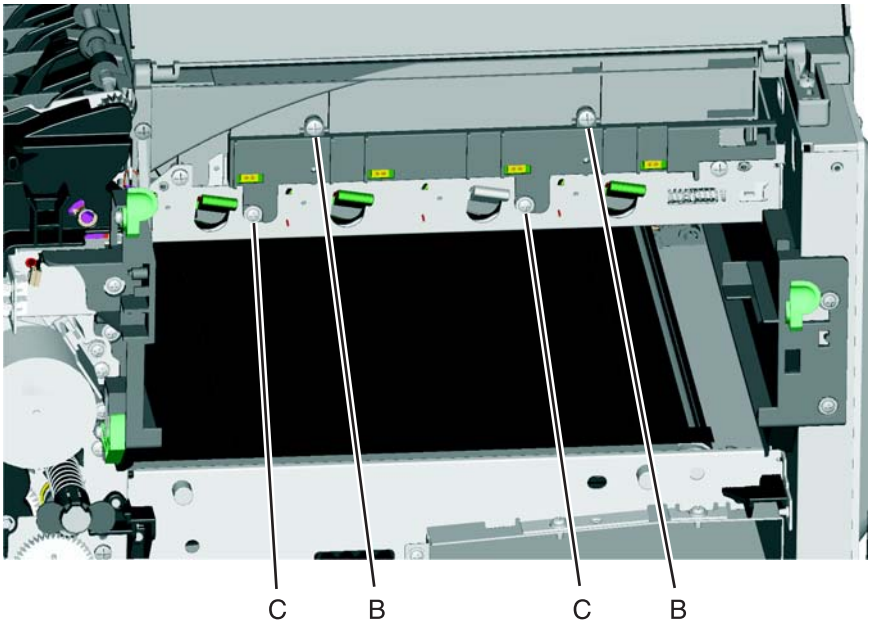
11. Remove the cable from the retainer on the bottom of the printer.
12. Extract the cable through the frame, and remove the cable with the spring contacts.

Toner meter cycle (TMC) card removal

1. Remove the right cover. See **“Right cover removal” on page 4-7**.
2. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-73**.
3. Remove the imaging unit (IU). See **“Imaging unit (IU) removal” on page 4-63**.
4. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
5. Disconnect and remove the toner meter cycle card cable (A).
   Note: Observe the cable routing for reinstallation.



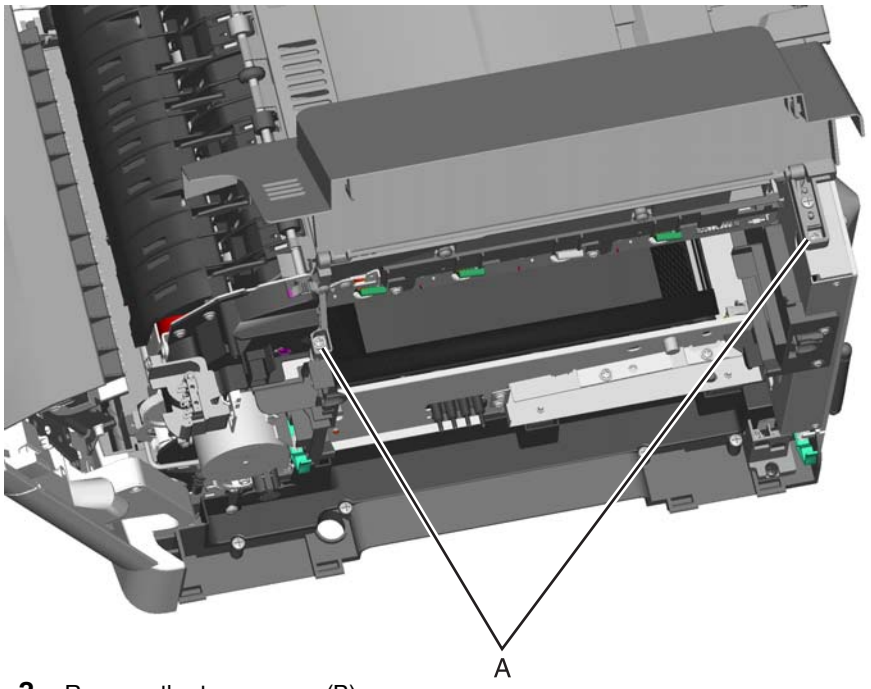
6. Remove the two plastic screws (B) and the two metal screws (C), and remove the card.



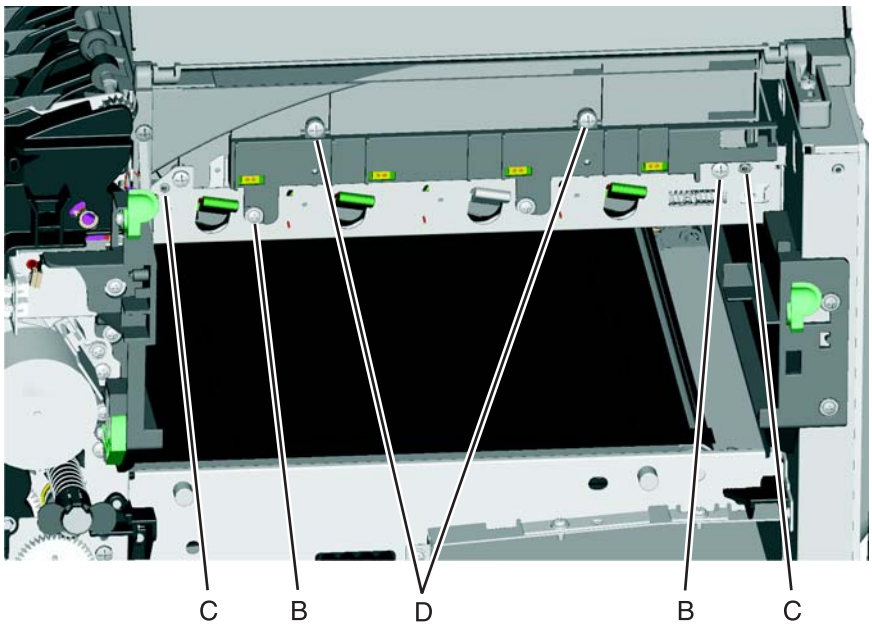
Installation notes:

- Be sure the cable runs through the retainer.
- The toner meter cycle card is a tight fit. Insert the bottom edge inside the frame, and then push down on the top edge to clear the top cover.
- In some cases, the top cover will have to be loosened so the right edge of the top cover can be lifted to get the toner meter cycle card back into position:

1. Remove the two machine screws (A).



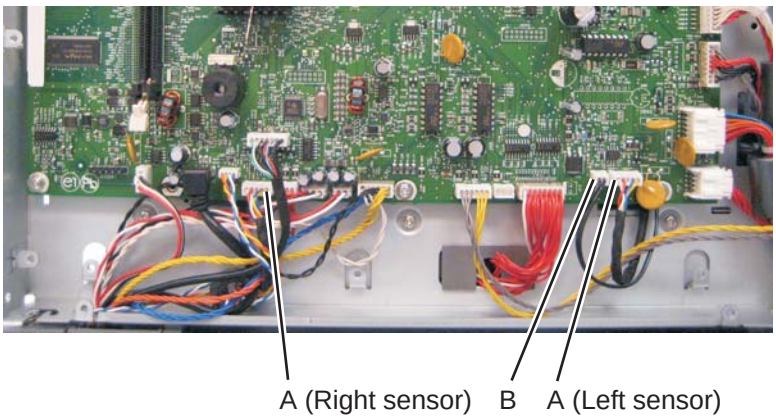
2. Remove the two screws (B).
3. Push in on the cover above the locating pins (C) while lifting to disengage the cover. Carefully lift the cover just enough for clearance for the toner meter cycle card.
4. Position the toner meter cycle card.
5. Replace the screws (D), and replace the top cover.



Toner patch sensor (TPS)—left and right removal

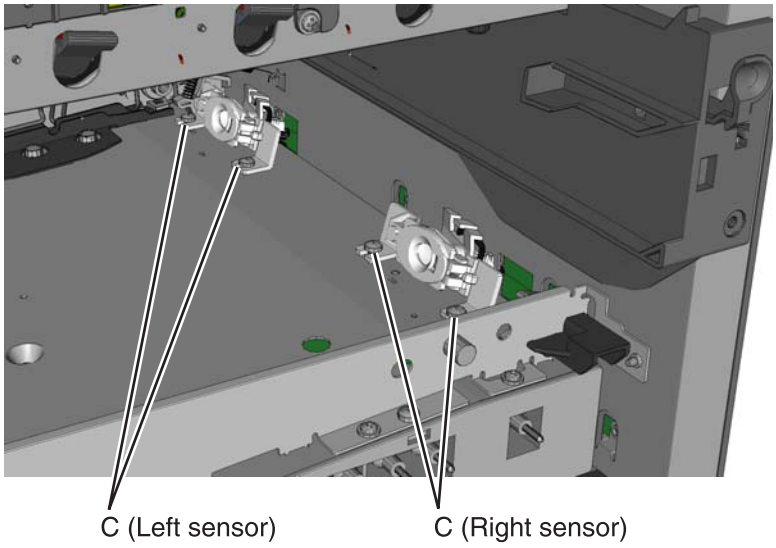
The toner patch sensors are similar, but the left sensor includes an extra cable and sensing device. Remove them the same way.

1. Remove the ITU. See **“Image transfer unit (ITU) removal” on page 4-43**.
2. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
3. Disconnect the toner density sensor cable from JTDS1 connector (A Right) or JTDS2 connector (A Left) on the RIP board. If you are removing the left toner density sensor, also disconnect the thermistor from JFUSES1 connector (B) on the RIP board.



Note: Observe the cable routing for reinstallation.

4. Remove the two screws (C) securing the sensors.



Note: Observe the cable routing for reinstallation.

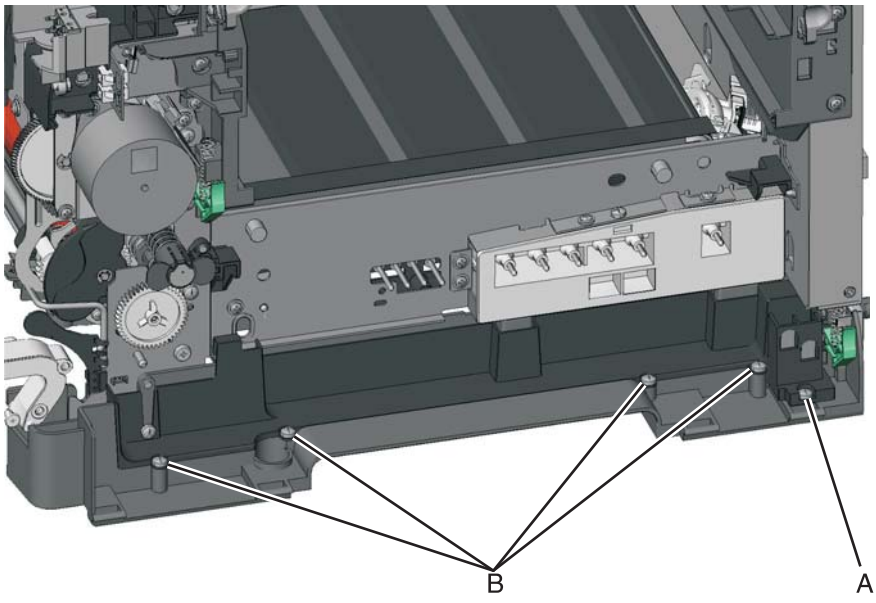
Installation notes:

Whether you replace the left or right toner density sensors, be sure to perform the TPS Setup. Enter the 32-digit TPS value set at the factory and printed on the barcode on the toner density sensor.

1. Enter the Diagnostics Menu:
   a. Turn off the printer.
   b. Press and hold **2** and **6**.
   c. Turn on the printer.
   d. Release the buttons when the progress bar appears.
2. Navigate to **TPS Setup**.
3. Select **Right** or **Left**, and touch the **Keyboard** icon.
4. Change the TPS value.
5. Touch **Clear**.
6. Enter the TPS value.
7. Touch Submit to save the settings.
8. Submitting changes displays.
   - If the value is incorrect, `Checksum does not match` appears, and the original screen appears to re-enter the value.
   - If the value is correct, `Saving changes to NVRAM` appears.

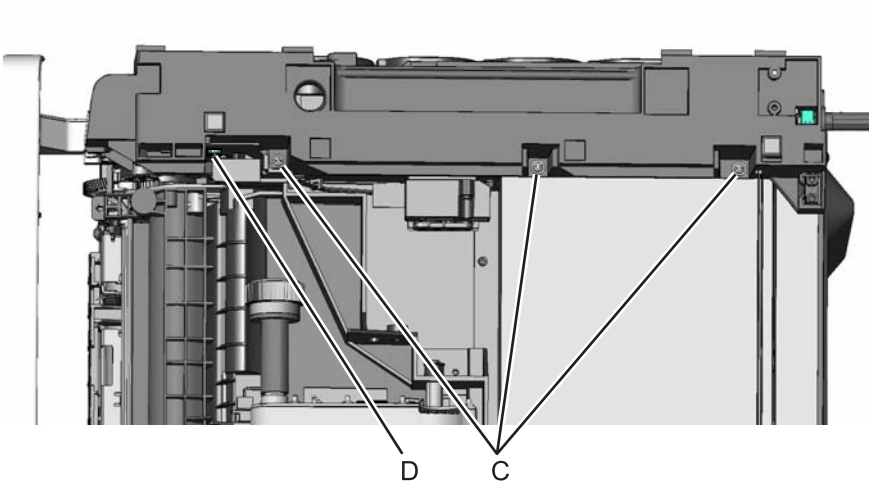
Tray present sensor removal

1. Remove the media tray.
2. Remove the imaging unit. See **"Imaging unit (IU) removal" on page 4-63**.
3. Remove the rear screw (A) in the waste toner bottle sensor contact to allow access to the cable cover.
   Note: The waste toner bottle sensor contact does not need to be unplugged or removed.
4. Remove the four screws (B) from the cable cover, and remove the cable cover.

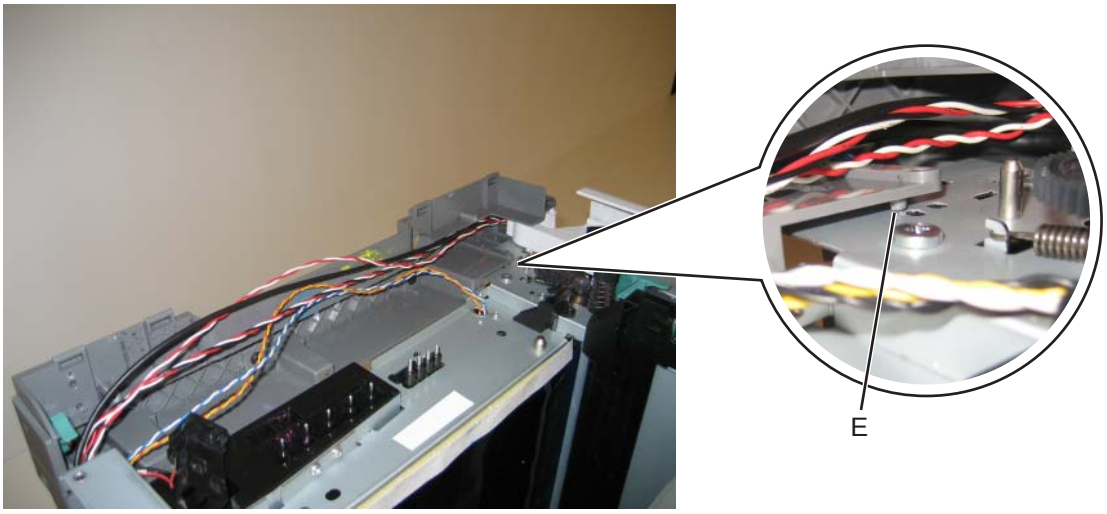


5. Turn the printer on its back.
6. Remove the three screws (C) securing the lower right frame to the printer.

7. Remove the screw (D) closer to the front of the printer.

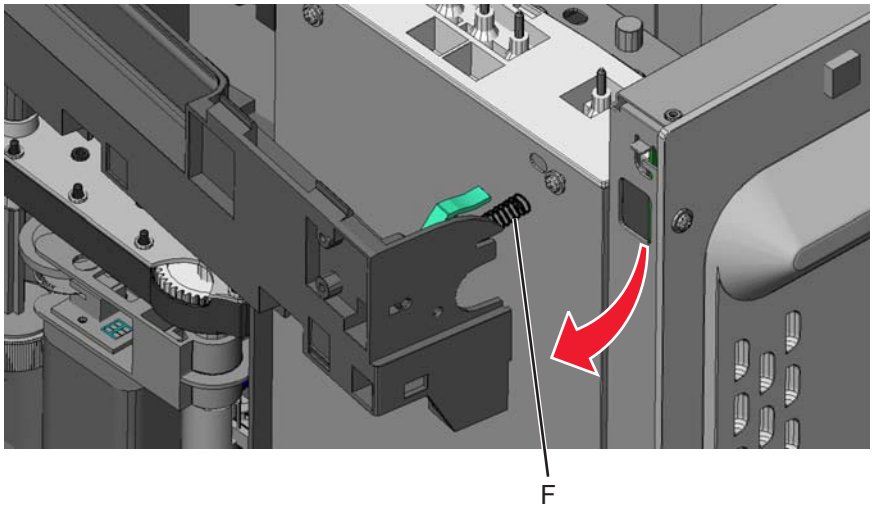


8. Lift the right lower frame pin (E) out of the hole in the printer frame.

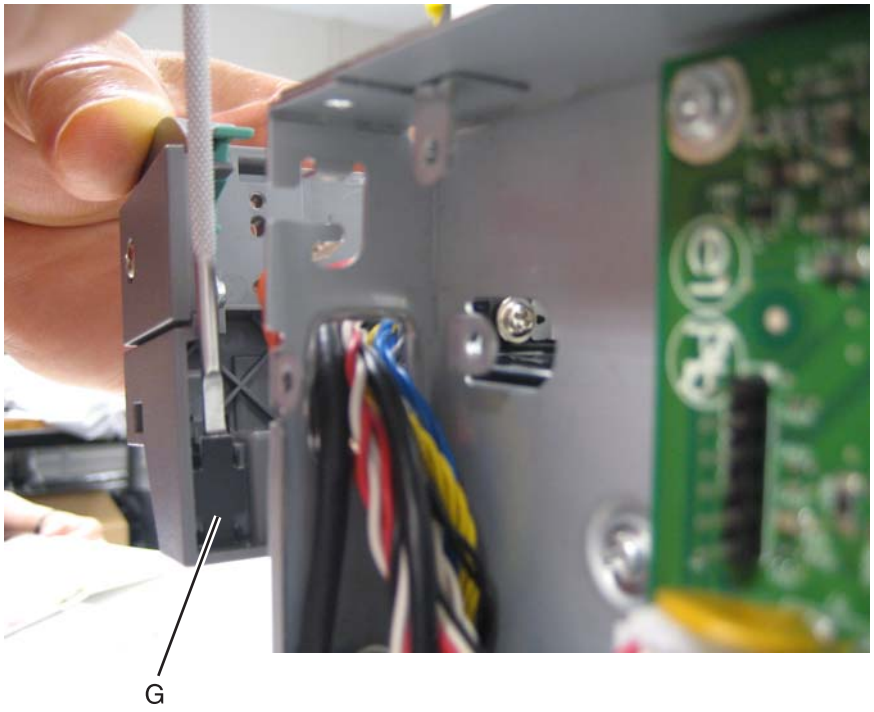


9. Swing the rear of the lower frame away from the printer to access the tray present sensor latches.

10. Remove and secure the spring (F) from the right lower frame.
    Note: The spring easily gets lost.



11. Disconnect the tray present sensor cable.
12. Remove the sensor retaining plate (G), and then squeeze the latches together to remove the tray present sensor.



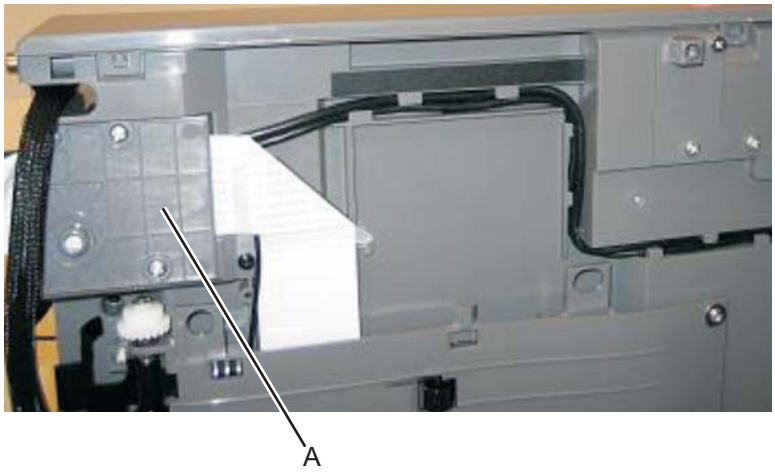
Installation notes:

1. Clean the contact surface where you removed the sensor retaining plate, or where you need to install the new one.
2. Install the sensor.
3. Make sure the clips on the posts latch to the frame.

4. Remove the backing from the new plate, and place the plate on the surface between the sensor mounting posts.
5. Connect the cable to the tray present sensor.
6. Replace the spring.

USB connector removal

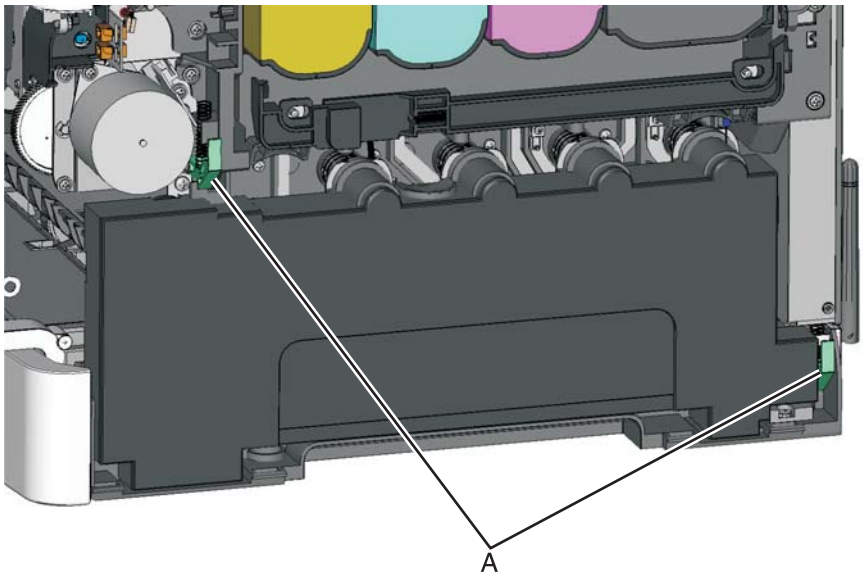
1. Remove the rear shield. See **"Rear shield removal" on page 4-7**.
2. Disconnect the USB connector from the RIP board.
3. Remove the flatbed assembly. See **"Flatbed removal" on page 4-75**.
   Note: Do not remove the flatbed covers, or any of the hinges. The flatbed needs to be removed from the print engine only.
4. Remove the operator panel from the flatbed assembly. See **"Operator panel assembly removal" on page 4-102**.
5. Remove the CCD ribbon cable cover (A), and route the USB cable out through the cable channel on the flatbed unit.



Waste toner bottle removal

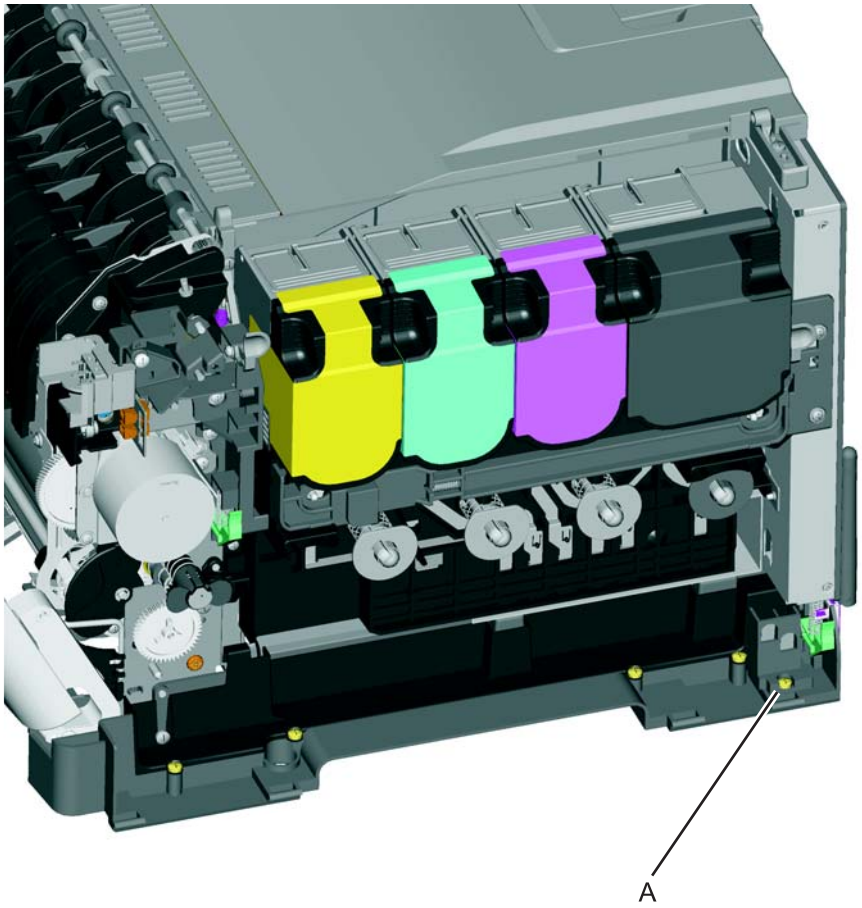
The waste toner bottle is a customer replaceable unit.

1. Open the front cover.
2. Lift the toner cover.
3. Remove the right cover assembly. See **“Right cover removal” on page 4-7**.
4. Press the two tabs (A) to release the waste toner bottle, and remove it.



Waste toner bottle contact block removal

1. Open the front cover.
2. Remove the right cover assembly. See **“Right cover removal” on page 4-7**.
3. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-73**.
4. Remove the screw (A) from the back of the waste toner bottle contact block.

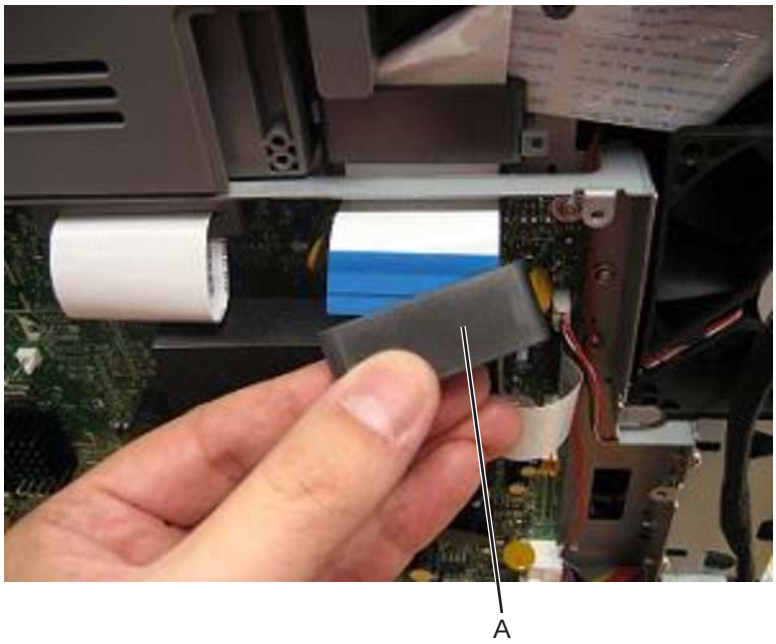


5. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
6. Disconnect the waste toner bottle contact block cable from connector JWT1 on the RIP board.
7. Remove the waste toner bottle contact block.

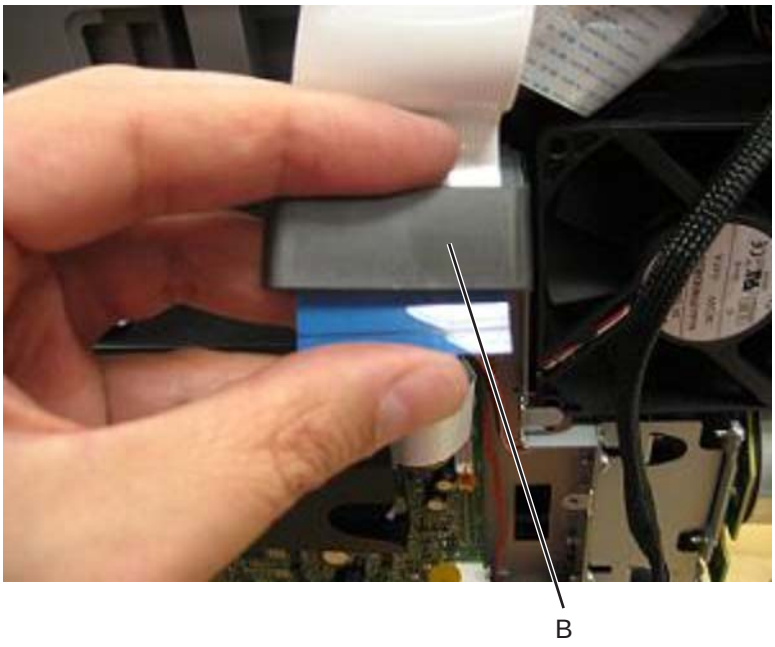
Scanner component removal procedures

Flatbed removal

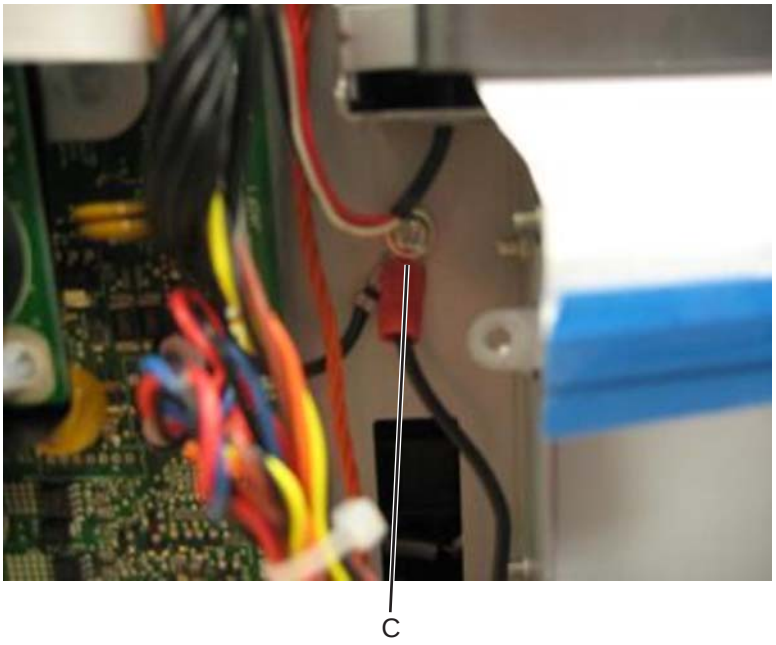
1. Remove the AIO rear cable cover. See **“AIO back cable cover removal” on page 4-8**.
2. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
3. Remove the left cover. See **“Left cover removal” on page 4-4**.
4. Remove the ADF unit. See **“Duplex ADF removal” on page 4-87**.
5. Disconnect the CCD cable from JCCD1 on the RIP board.
6. Remove the first toroid (A) from the CCD cable. The toroid will be reused on the new flatbed unit.



7. Remove the second toroid (B) from the toroid holder, and slide it off the CCD cable. This toroid will also be reused on the new flatbed unit.



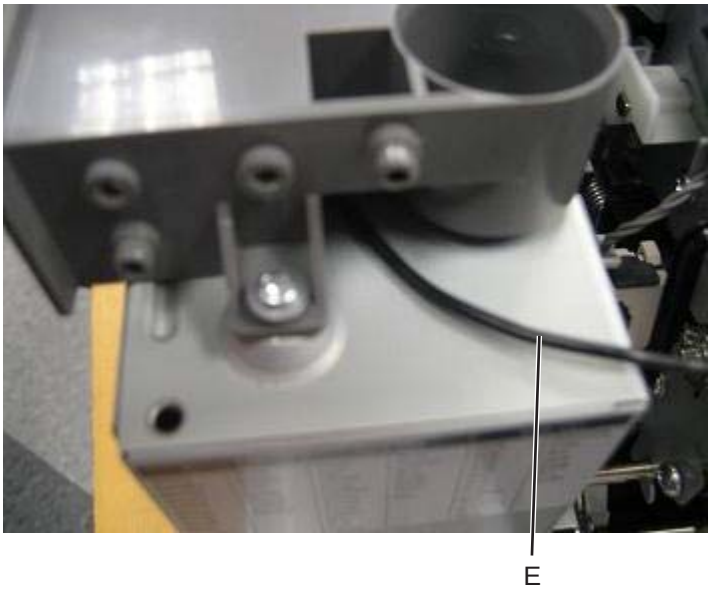
8. Remove the screw (C) that fastens the redrive ground cable and ADF ground cableground cable to the frame.



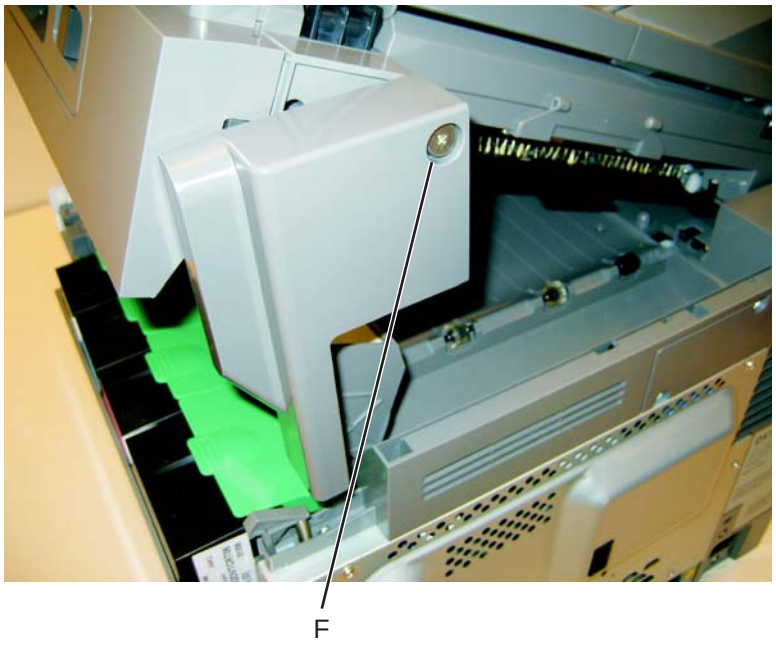
9. Disconnect JADF1, and route the cable through the top of the card cage.
10. Disconnect the USB cable from JUSB1, op panel cable from JUIC1, flatbed home sensor cable from JHS1, and flatbed motor cable from JFBM1. Route the cables through the right side of the card cage.

11. Disconnect the operator panel ground cable (D) from the LVPS.

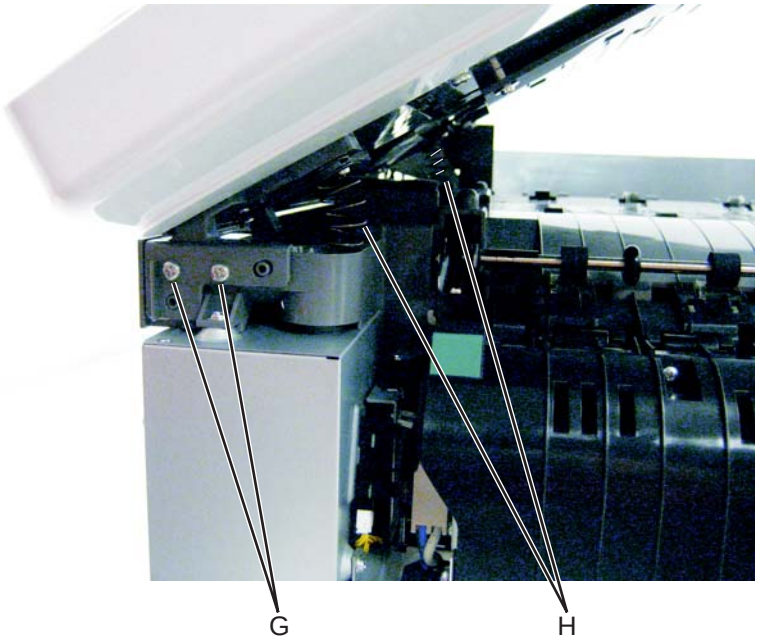
12. Thread the ground cable (E) under the top cover.



13. Disconnect the screw (F) connecting the flatbed to the AIO link on the rear of the MFP.

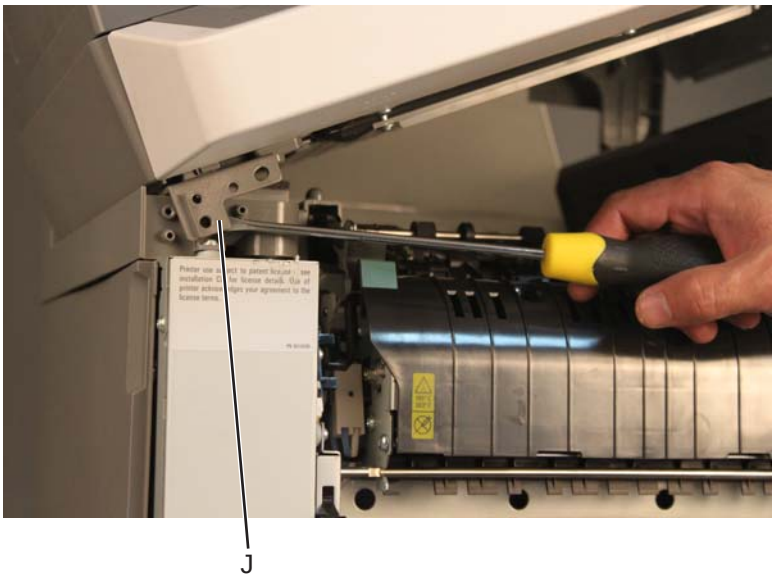


14. Carefully disconnect the AIO link from the flatbed.
15. Remove the two screws (G) securing the flatbed hinge to the top cover.
16. Remove the two springs (H) between the flatbed and top cover.



Note: Some units don't have the springs installed.

17. Gently pry the front flatbed hinge (J) towards the front of the top cover to disengage it from the top cover guide pin.



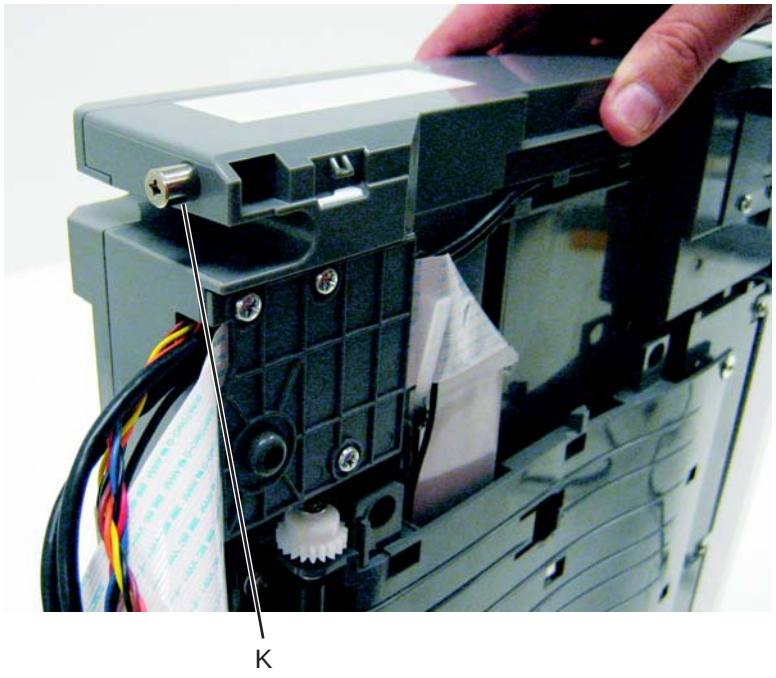
18. Carefully pull the flatbed unit towards the front of the MFP while using your other hand to route the cables through the top cover.

19. Remove the CCD ribbon route cover and homing guide attachment.

20. Disconnect the op panel ground termination from the LVPS.

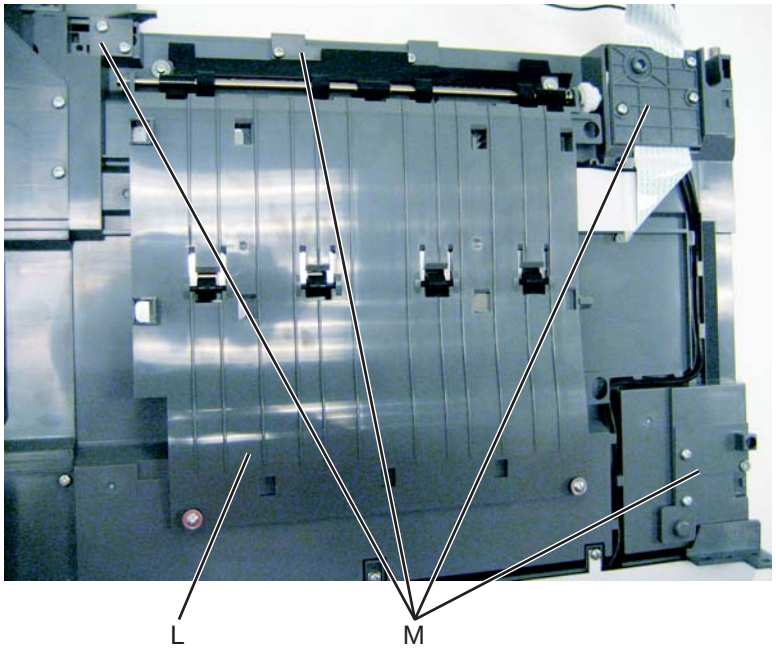
Note: This completes the removal of the flatbed assembly from the print engine. The removals for the FRUs attached to the flatbed are covered under different removal procedures. In addition to the FRUs, the following steps illustrate the additional parts that need to be removed from the old flatbed and transferred to the new flatbed.

21. Remove the steel hinge stud (K). Save this for use on the replacement flatbed.



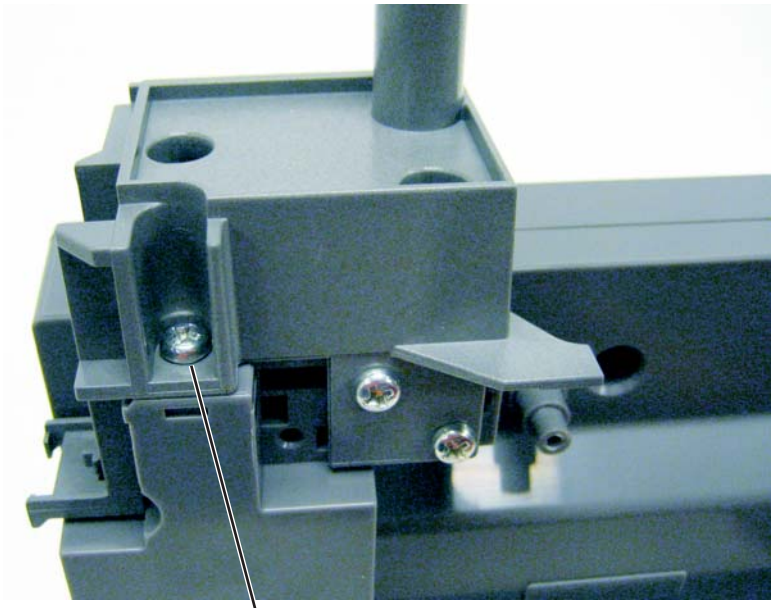
22. Remove the redrive unit (L). See **"Redrive unit removal" on page 4-93**.

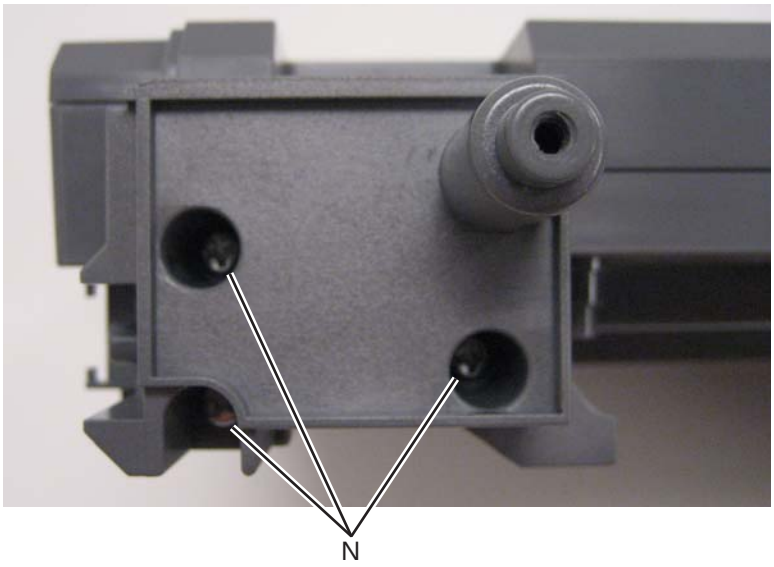
23. Remove the cable cover plates and scanner homing plates (M). These will be used on the replacement flatbed unit.



Warning: When replacing the rear cable cover plate, the cables must be routed as shown above. Failure to do so could damage the cables and lead to possible paper skews and jamming.

24. Remove the screws (N) securing the flatbed link to the flatbed.



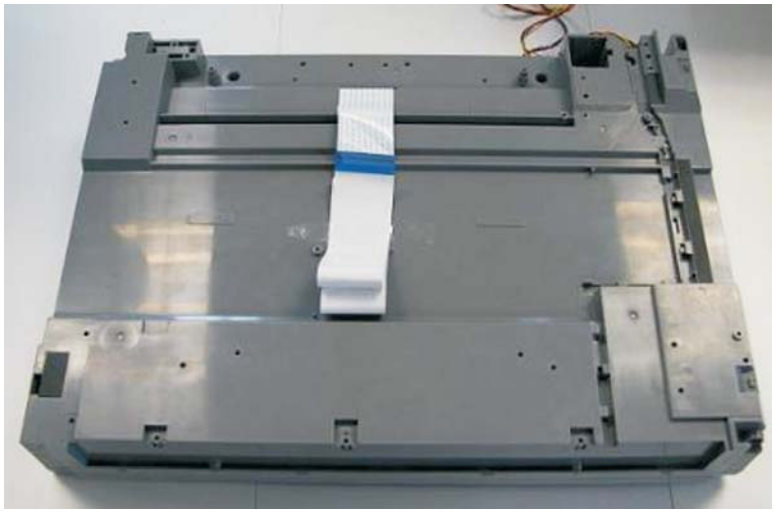


25. Remove the flatbed link. It will be used on the replacement flatbed unit.

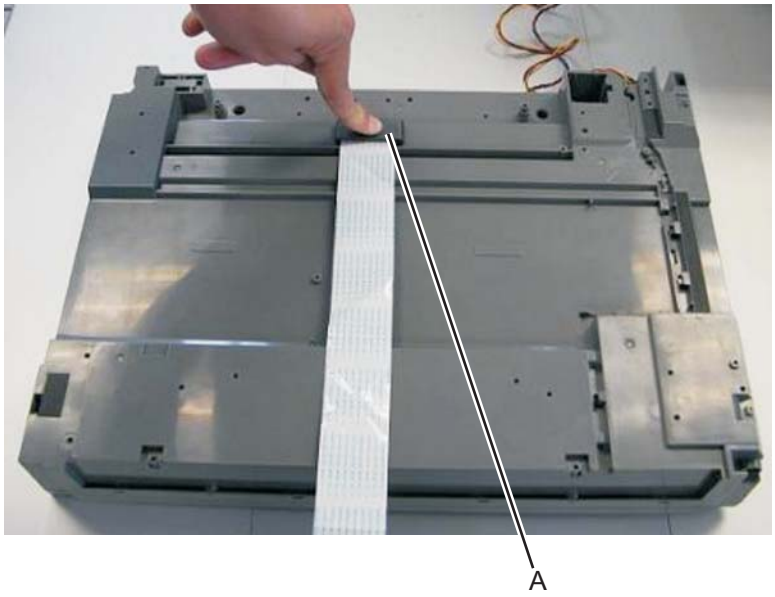
Note: The redrive, cable covers, operator panel assembly, scanner flatbed guides, op panel cable, and USB cable need to be transferred to the replacement flatbed unit.

Preparing and installing the new flatbed

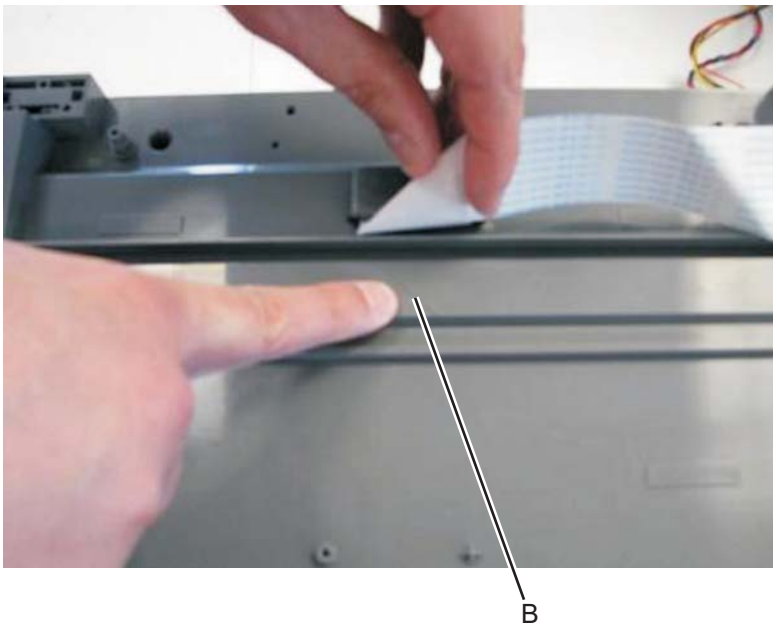
1. Unbox the scanner, and place it top down on a non-marring surface.



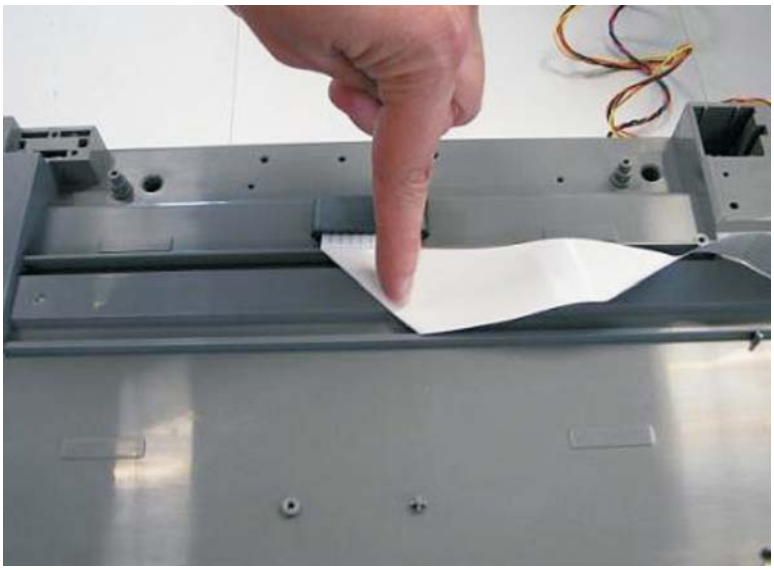
2. Unfold the ribbon cable, and replace the toroid (A) from the old flatbed.



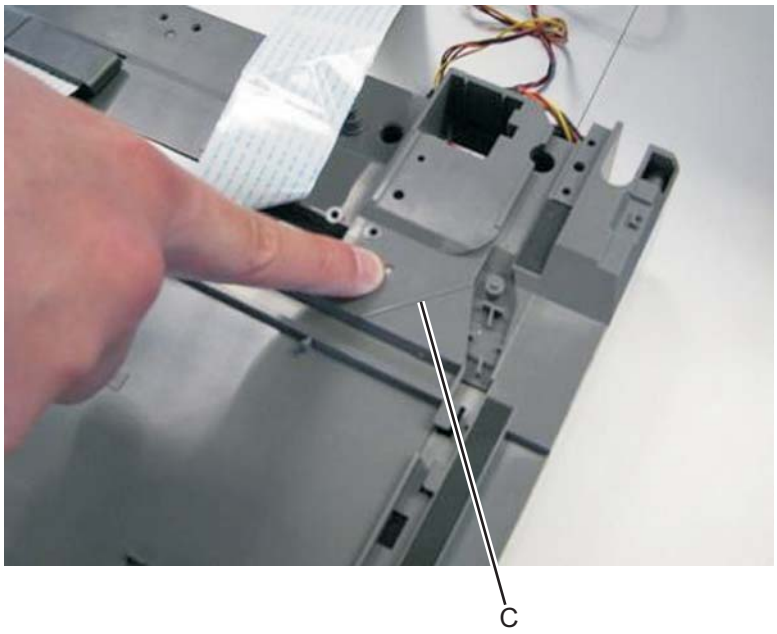
3. Locate the folding guide line (B), and remove the paper backing from the adhesive strip located next to the folding guide line on the scanner.



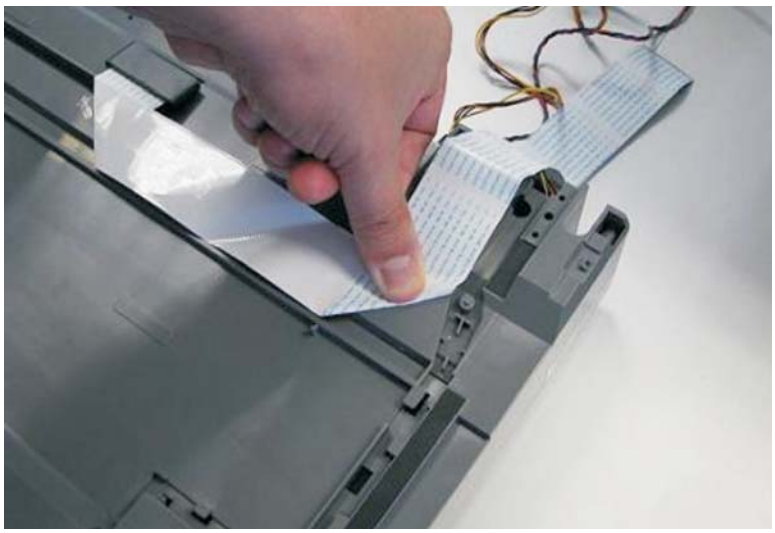
4. Fold the ribbon cable as shown. Align the fold of the cable with the folding guide line on the flatbed. Press down the cable so that it sticks to the adhesive strip.



5. Locate the second folding guide line (C), and remove the paper backing from the adhesive strip.



6. Fold the ribbon cable a second time as shown. Align the fold of the cable with the folding guide line on the flatbed. Press down the cable so that it sticks to the adhesive strip. The ribbon cable should lie flat against the flatbed, and there should be no slack on the ribbon cable between the two folds.

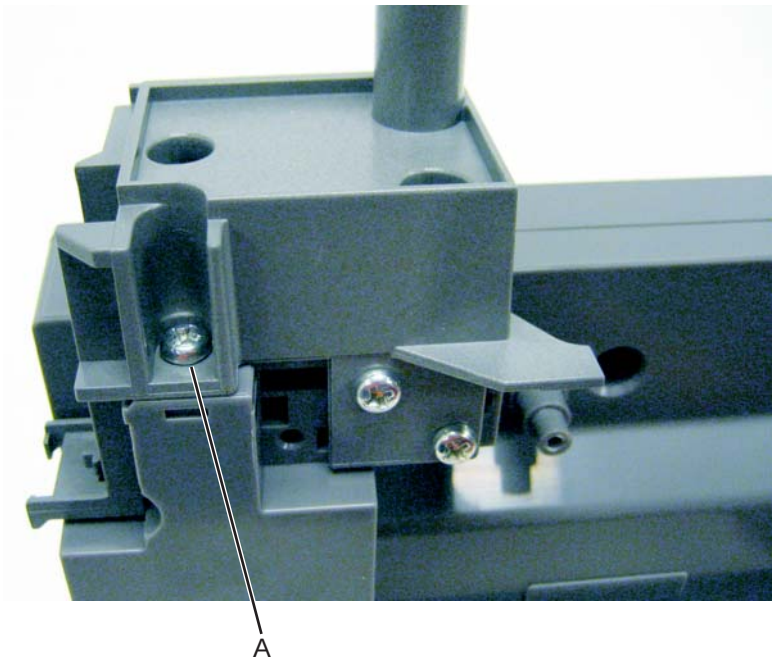


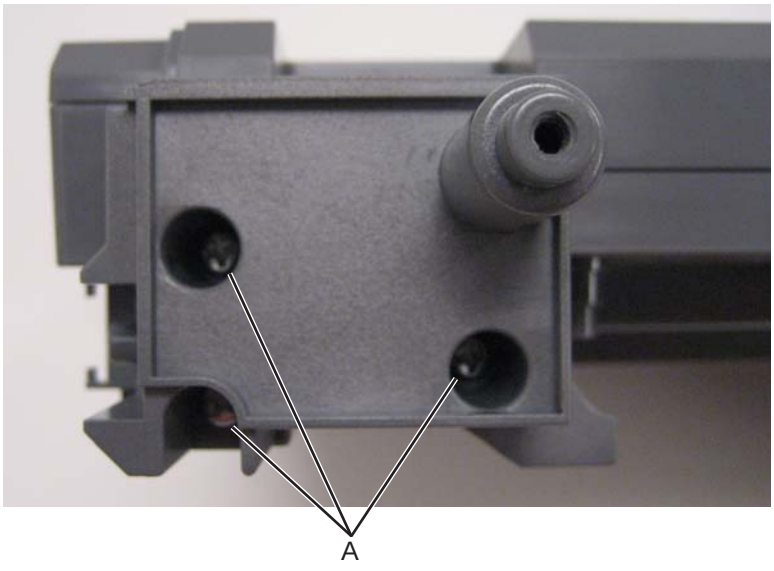
7. Replace the plastic front hinge from the old scanner.
8. Replace the cable cover plates and scanner alignment guides from the old scanner.
9. Replace the steel hinge stud from the old scanner.
10. Replace the redrive unit, AIO release lever, side covers, and operator panel.

Note: After installing the new flatbed unit, perform the scanner calibration procedure and the scanner manual registration procedure. See **“Scanner Calibration” on page 3-14** and **“Scanner Manual Registration” on page 3-38**.

Flatbed pivot link removal

1. Remove the AIO link. See **“AIO link removal” on page 4-97**.
2. Remove the right scanner cover. See **“Scanner right cover removal” on page 4-94**.
3. Remove the AIO release lever. See **“AIO release lever removal” on page 4-96**.
4. Remove the screws (A) securing the flatbed link to the flatbed.

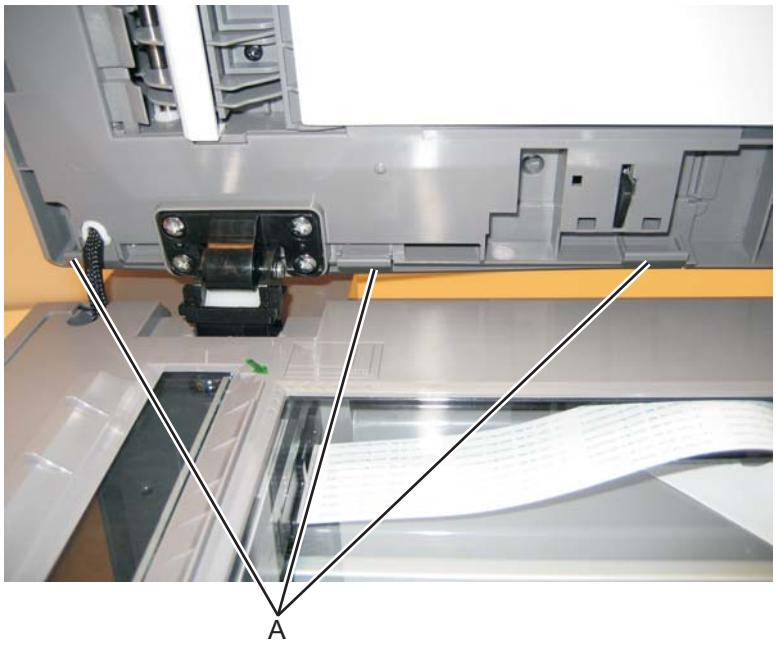




5. Remove the flatbed pivot link.

Duplex ADF rear cover removal

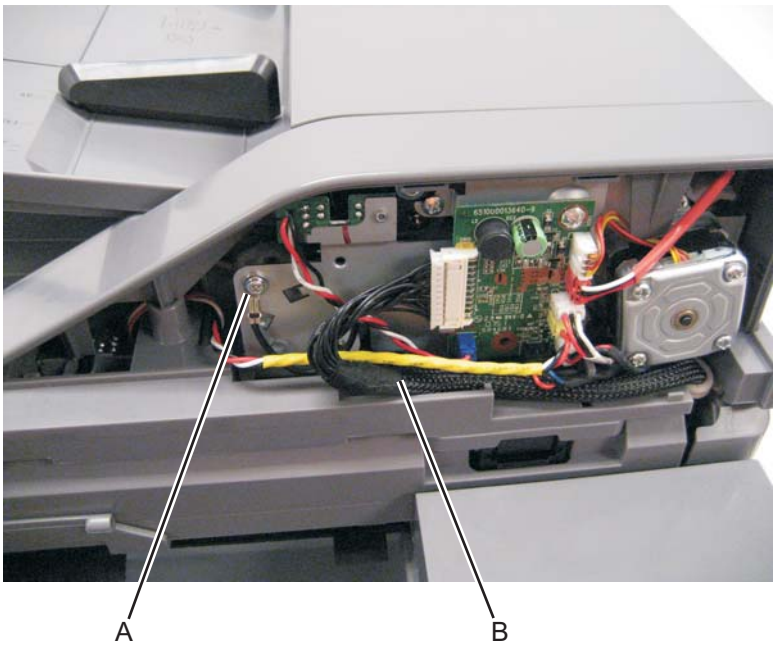
1. While lifting the ADF, use a flat-blade screwdriver to pry open the three tabs (A) on the bottom of the ADF cover.



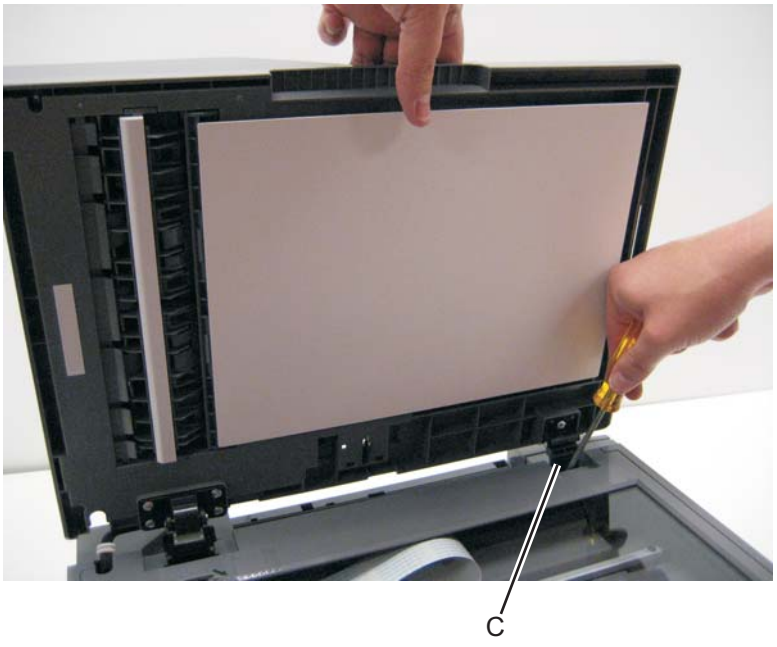
2. Lift and remove the rear cover from the ADF assembly.

Duplex ADF removal

1. Remove the duplex ADF rear cover from the ADF assembly. See **"Duplex ADF rear cover removal" on page 4-86**. Save the cover for use on the new ADF unit.
2. Disconnect the ground cable (A) from the ADF assembly.
3. Disconnect the ADF cable (B) from the ADF card located on the ADF assembly.



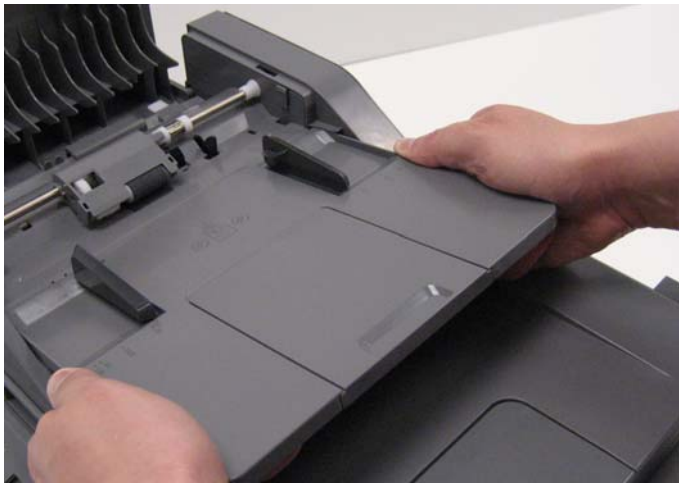
4. Carefully pull the ADF cable and grommet away from the ADF assembly.
5. Lift the ADF to an upright position.
6. Use a screwdriver to release the right hinge (C) from the flatbed unit.



7. Remove the ADF assembly.
   Note: After installing the new ADF unit, perform the scanner calibration procedure and the scanner manual registration procedure. See **"Scanner Calibration" on page 3-14** and **"Scanner Manual Registration" on page 3-38**.

ADF input tray removal

1. Firmly grasp the ADF input tray on both sides.



2. Pull the ADF input tray out of the ADF.

Previous
Next
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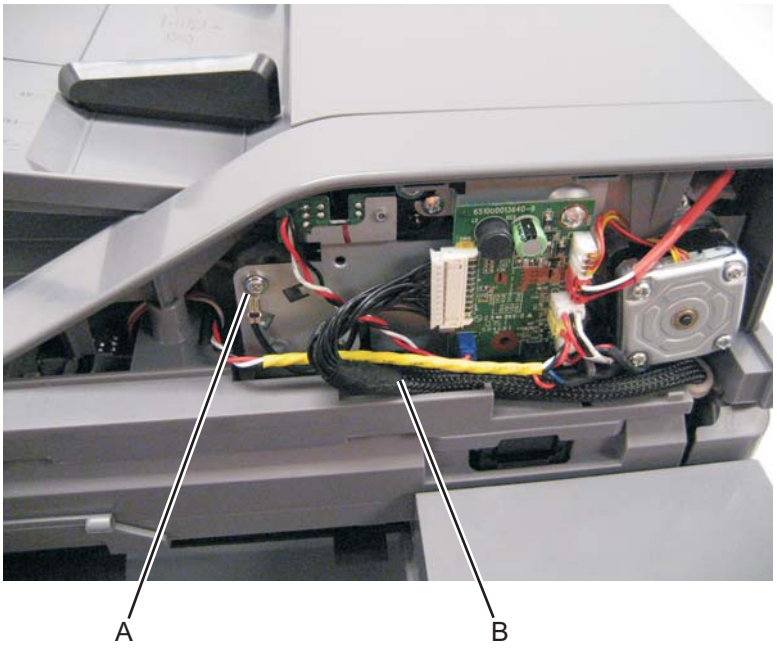
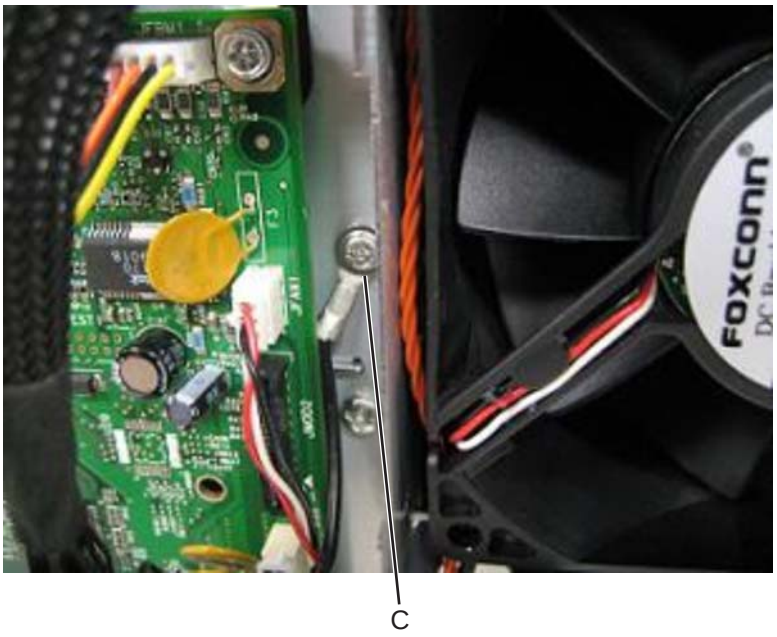
ADF cable removal

1. Remove the the duplex ADF rear cover. See **“Duplex ADF rear cover removal” on page 4-86**.
2. Remove the left cover. See **“Left cover removal” on page 4-4**.
3. Remove the AIO back cable cover. See **“AIO back cable cover removal” on page 4-8**.
4. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
5. Disconnect the ground cable (A) from the ADF assembly.
6. Disconnect the ADF cable (B) from the relay card in the ADF unit.

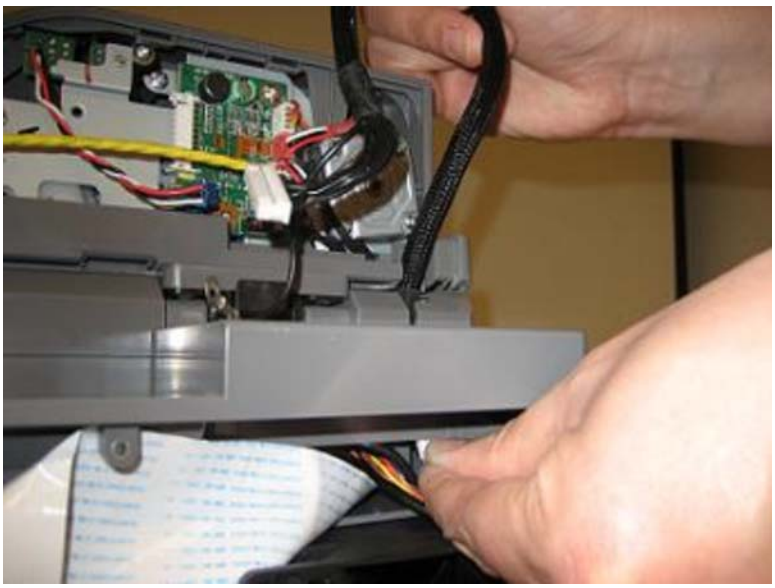


7. Disconnect the ADF cable from connector JADF1 on the RIP board.
8. Disconnect the ground cable (C) from the print engine.



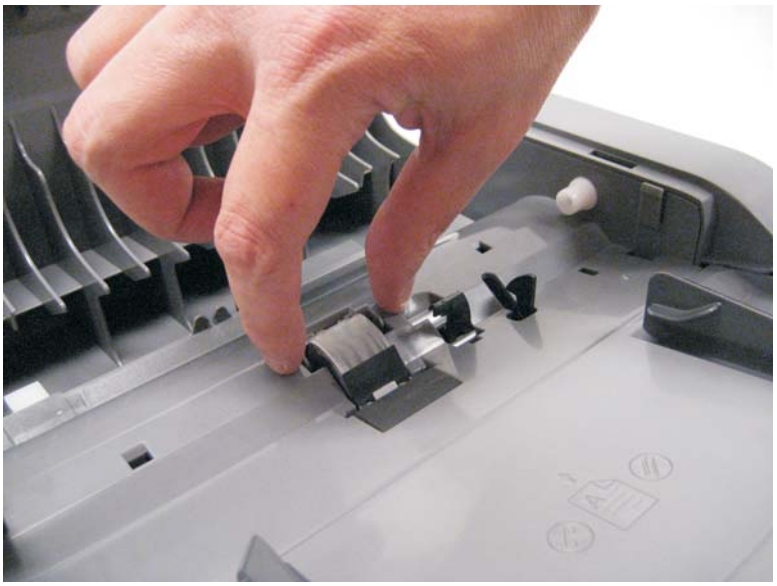
9. With your right hand, pull the relay card end of the ADF cable up and away from the ADF while using your left hand to guide the ADF cable up through the card cage opening.
   Note: Be careful to avoid contact with the CCD ribbon cable.

10. Feed the ADF cable up between the left flatbed cover and flatbed unit, and gently pull the cable up.

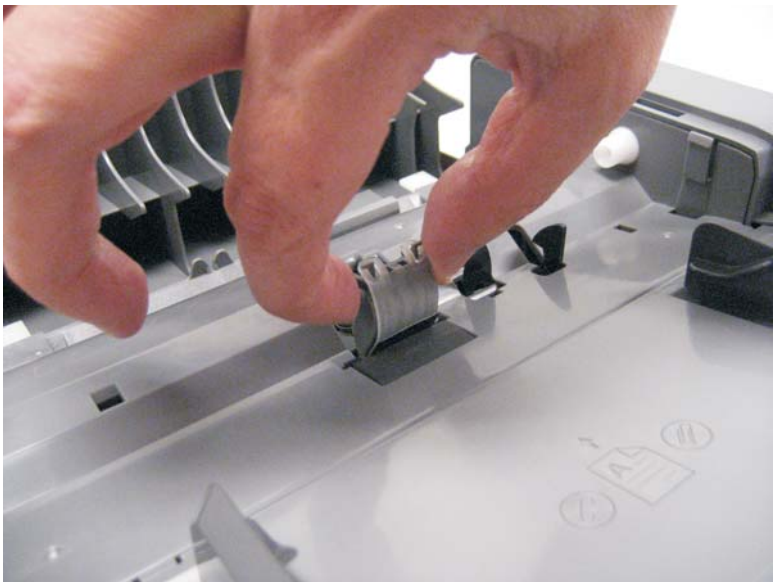


ADF separator pad removal

1. Remove the ADF separator roll. See **“ADF separator roll assembly removal” on page 4-92**.
2. Press the two tabs on each side of the pad inward.

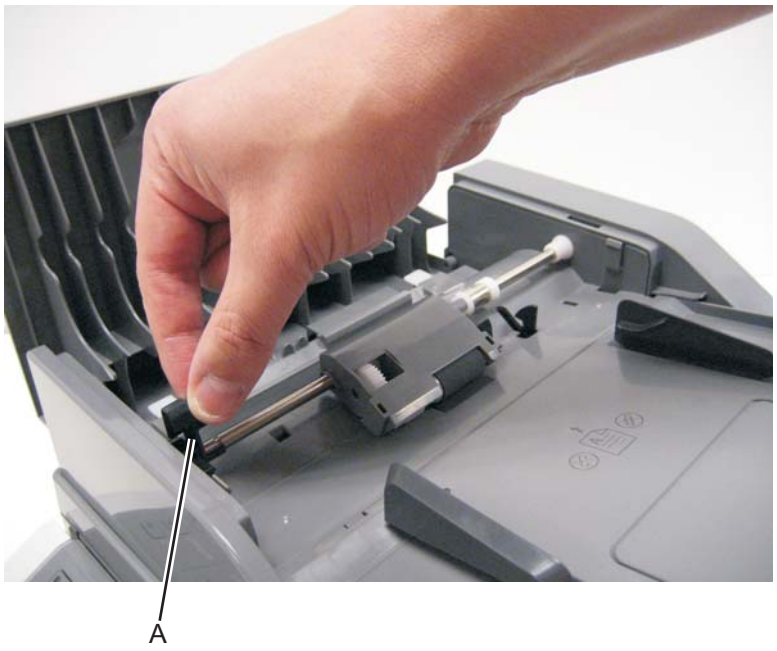


3. Tilt the pad up, and lift it out of the ADF assembly.

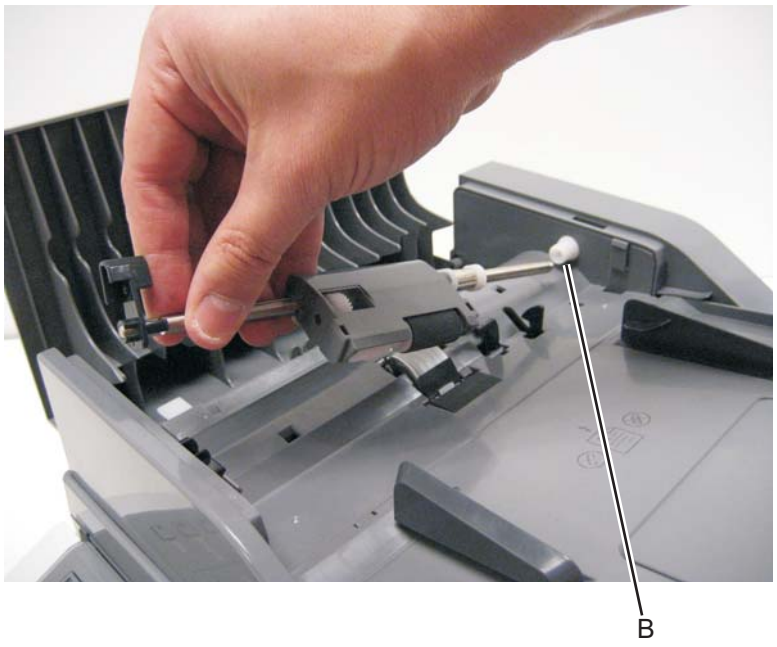


ADF separator roll assembly removal

1. Lift the locking lever (A).

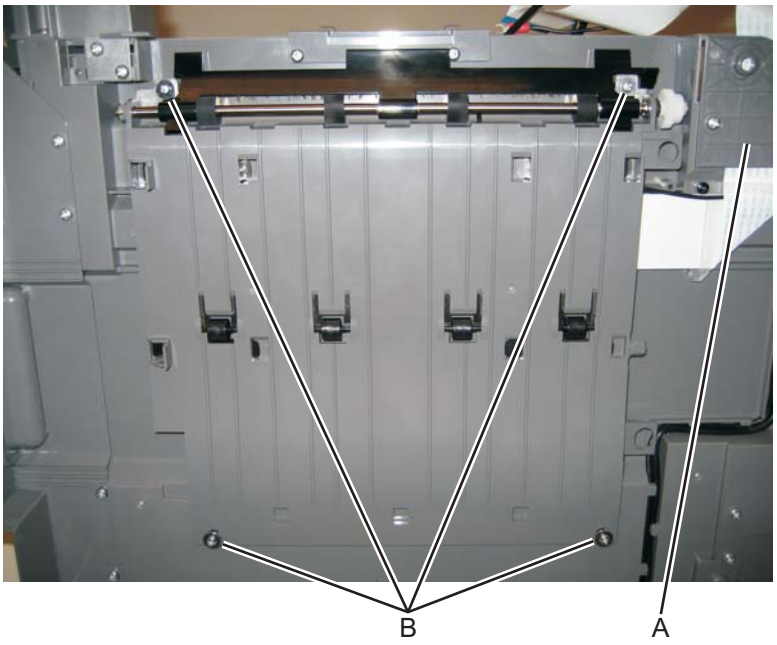


2. Slightly lift the separator roll assembly, and pull it out of the mount (B) on the opposite side.

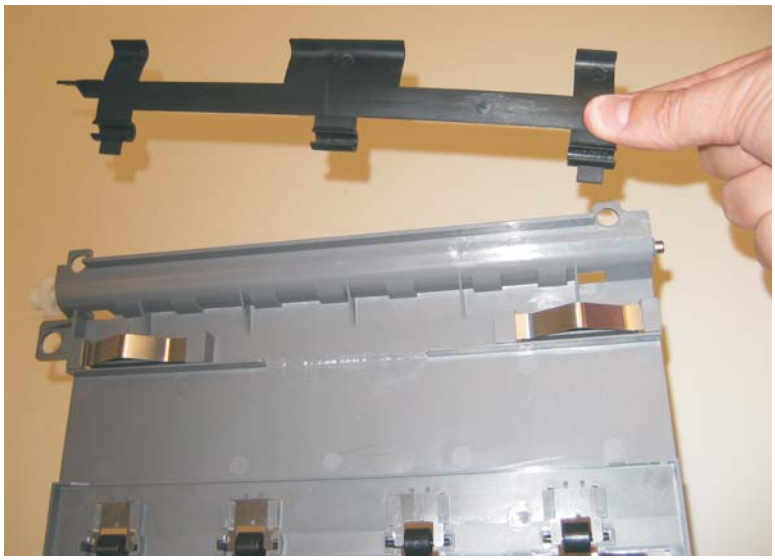


Redrive unit removal

1. Remove the flatbed assembly. See **“Flatbed removal” on page 4-75**.
2. Place the flatbed facedown on a soft surface to avoid scratching the glass or marring the covers.
3. Remove the cable cover plate (A).
4. Remove the four screws (B) securing the redrive to the flatbed unit.

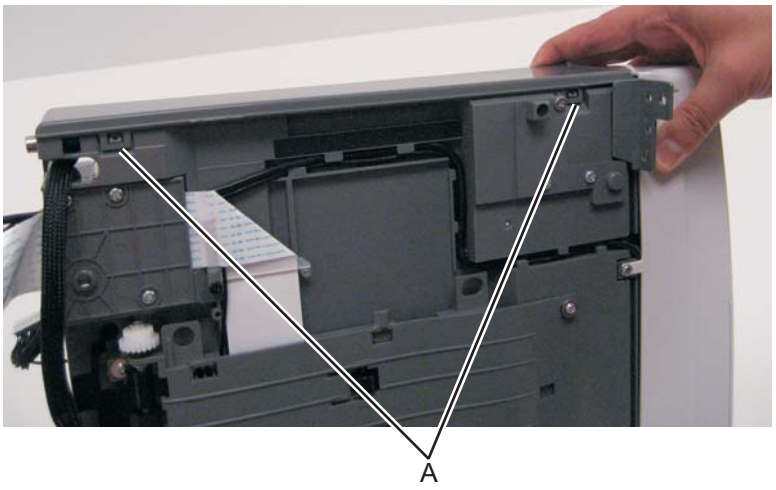


5. Remove the bin full sensor flag located on the rear shaft.



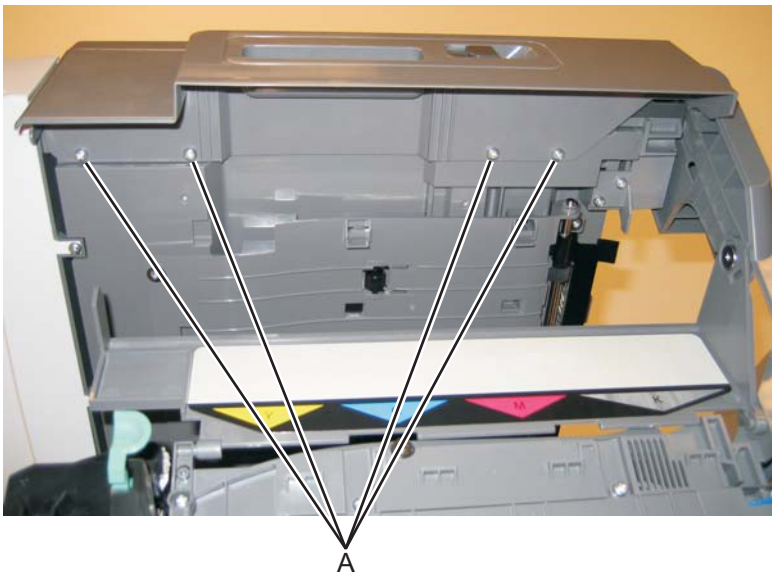
Scanner left cover removal

1. Remove the flatbed assembly. See **“Flatbed removal” on page 4-75**.
2. Release the tabs (A) securing the left flatbed cover to the flatbed unit using a small flat-blade screwdriver.



Scanner right cover removal

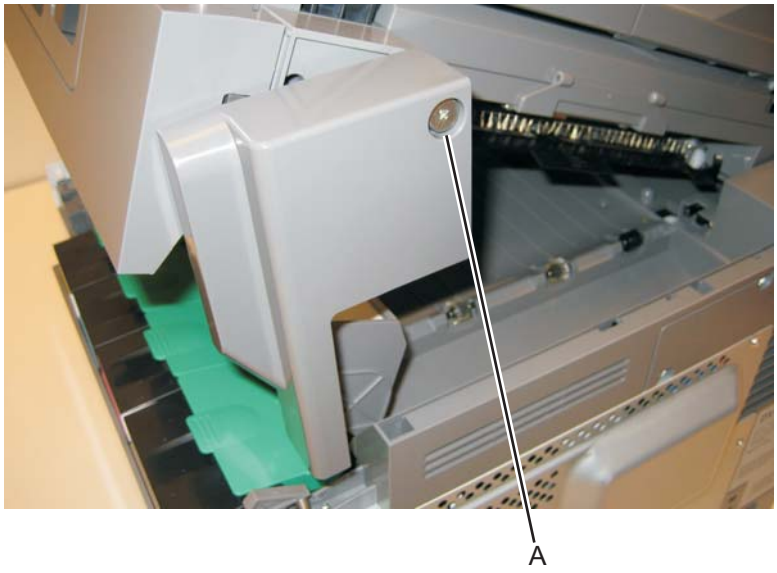
1. Remove the imaging unit in the print engine. See **“Imaging unit (IU) removal” on page 4-63**.
2. Raise the scanner assembly to the up position, and lock in place.
3. Remove the four screws (A) securing the right scanner cover to the flatbed unit.



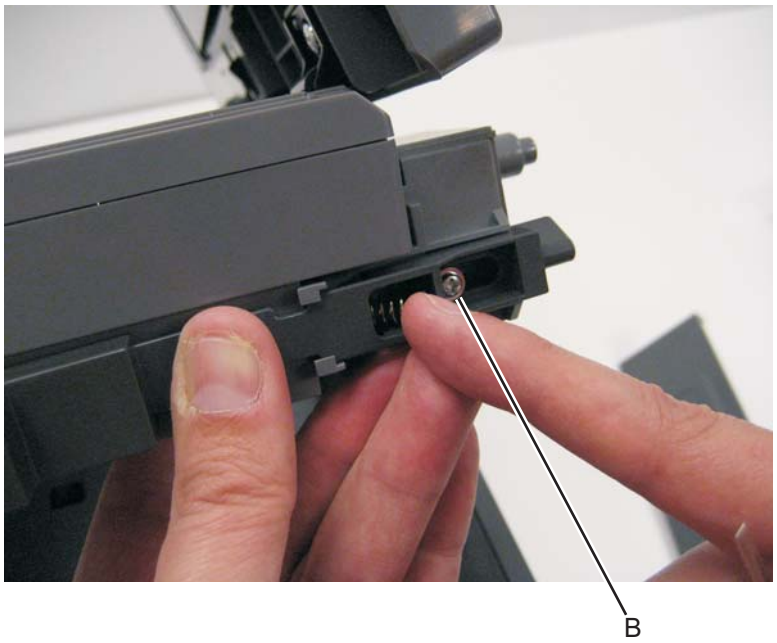
4. While holding the ADF away from the flatbed, use the other hand to lift and disengage the right scanner cover from the flatbed unit.

AIO release lever removal

1. Remove the right scanner cover. See **“Scanner right cover removal” on page 4-94**.
2. Remove the screw (A) securing the AIO link to the flatbed unit.



3. Disengage the AIO link from the flatbed unit.
4. Remove the screw (B) securing the AIO release lever to the flatbed.

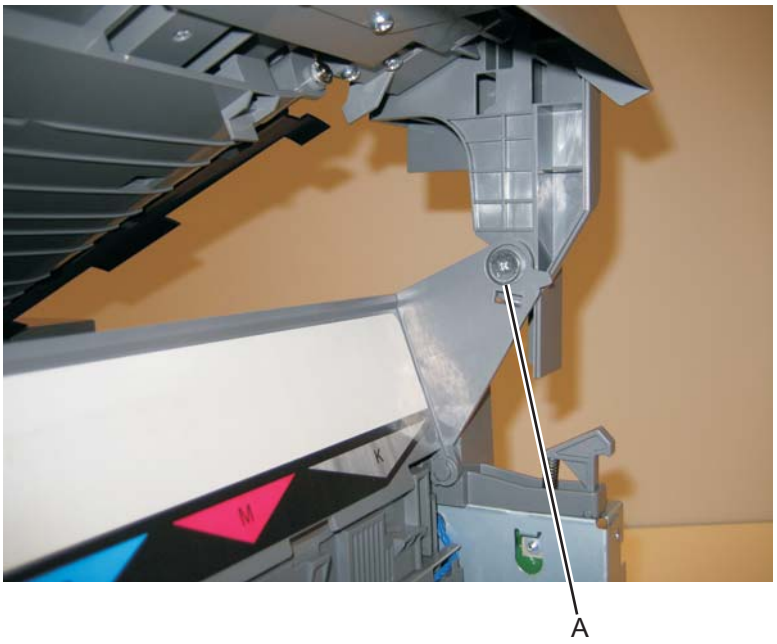


5. Slide the AIO release lever towards the back of the flatbed.
6. Remove the spring and AIO release lever.

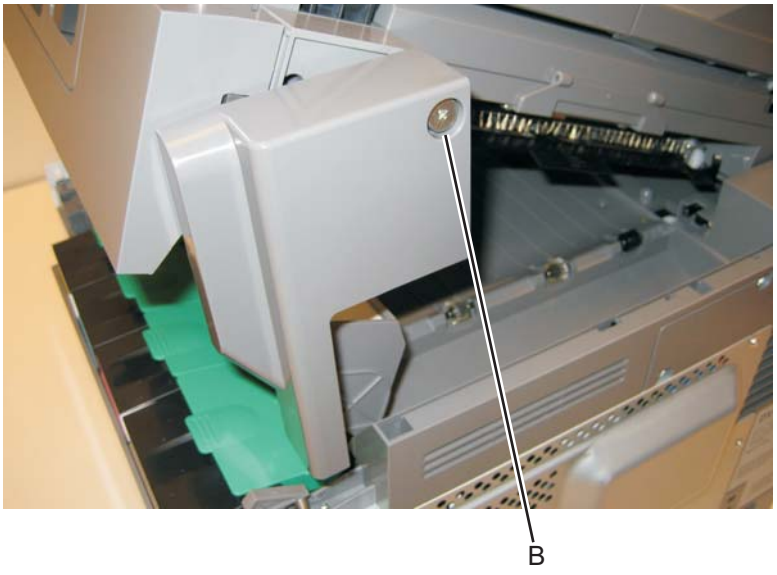
   Note: When reinstalling the AIO release lever, place the release lever on the flatbed, and then insert the spring before replacing the screw.

AIO link removal

1. Lift the scanner to the up position. Remove the screw (A) securing the AIO link to the AIO toner cover.

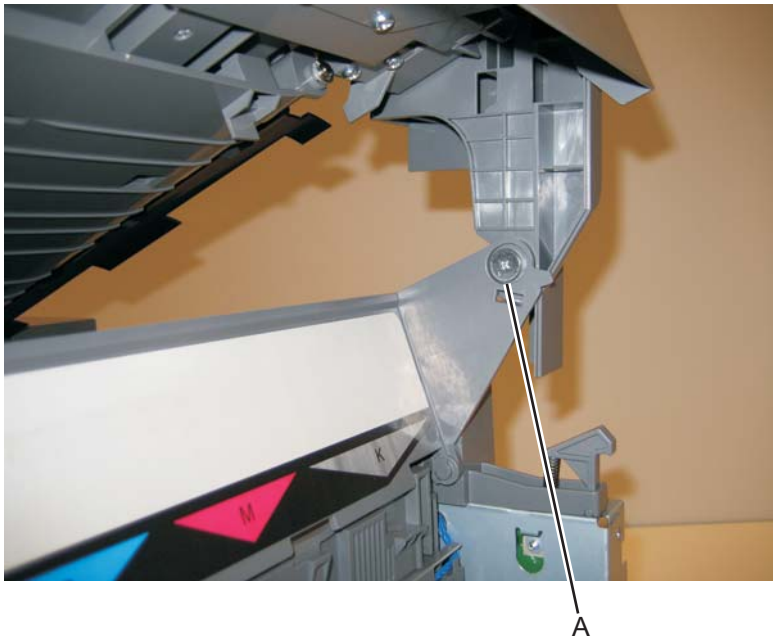


2. Return the flatbed to the down position.
3. Remove the screw (B) securing the AIO link to the flatbed unit.

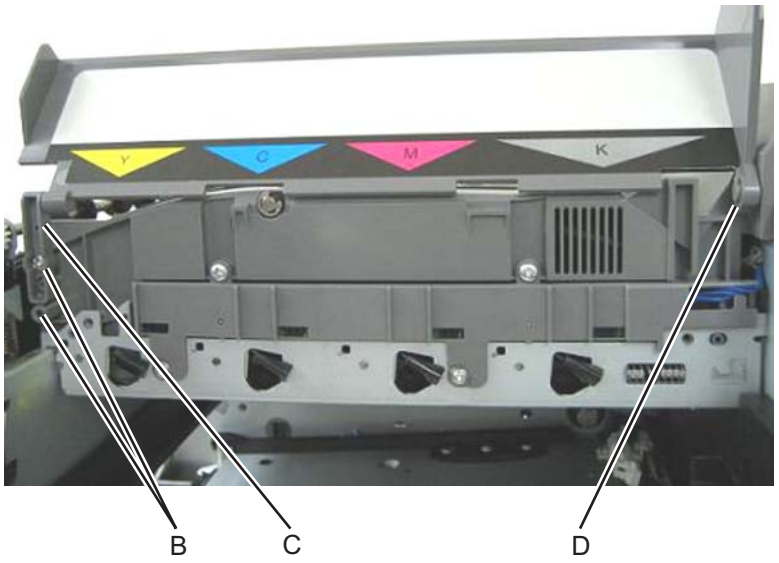


AIO toner cover removal

1. Lift the scanner unit to the up position.
2. Remove the screw (A) fastening the AIO toner cover to the scanner unit.



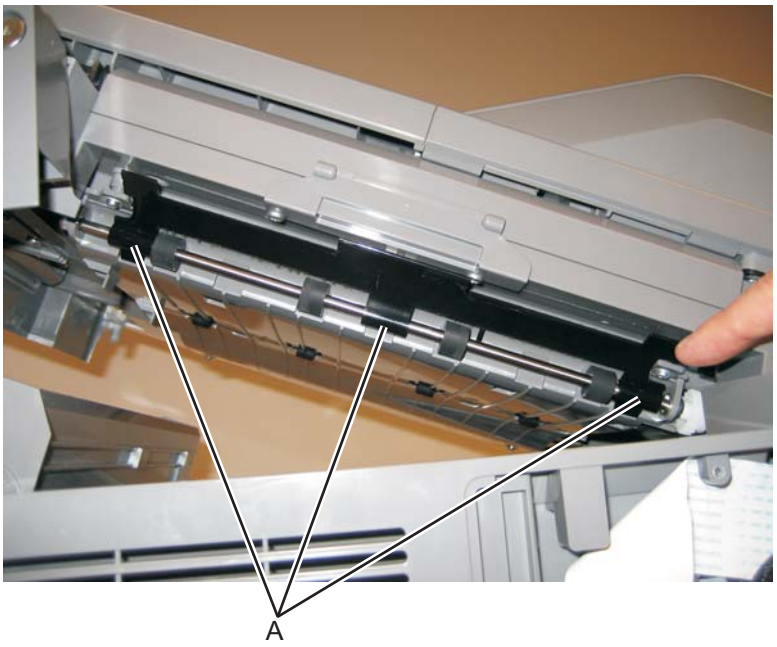
3. Remove the screws (B) securing the AIO hinge to the MFP.
4. Remove the hinge (C). Save this for the new AIO toner cover, or top cover.
5. Rotate the AIO toner cover so the tab (D) on the cover lines up with the hole on the AIO toner cover.



6. Pull the AIO toner cover to the left, and remove it from the printer.

Bin full flag removal

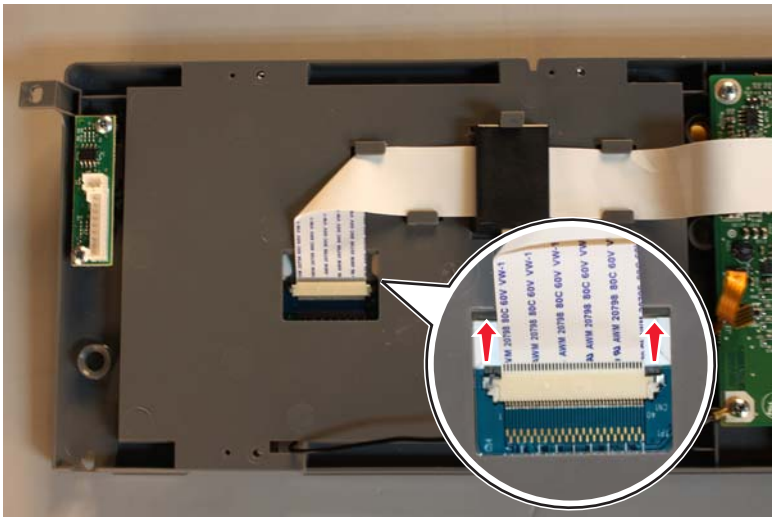
1. Lift the scanner assembly, and lock it into the up position.
2. Gently disconnect the three snaps (A) from the rear shaft of the redrive unit.



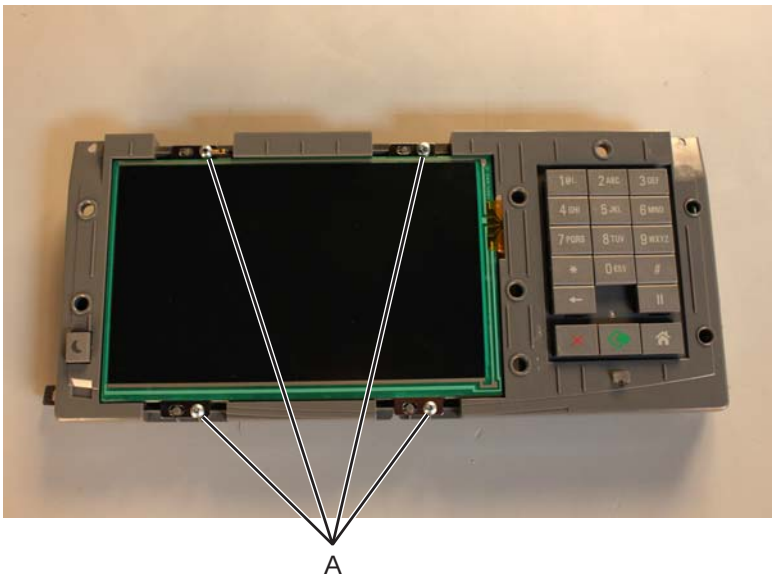
3. Remove the bin full flag.

LCD removal

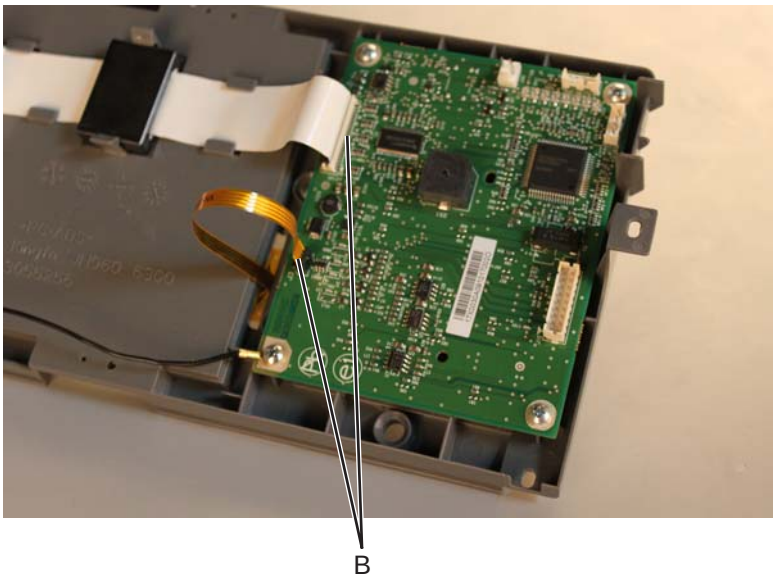
1. Remove the operator panel bezel. See **“Operator panel bezel removal” on page 4-104**.
2. Remove the operator panel frame cover. See **“Operator panel frame cover removal” on page 4-107**.
3. Remove the rear case with speaker. See **“Rear case with speaker removal” on page 4-108**.
4. Release the two plastic locks to disconnect the LCD cable.



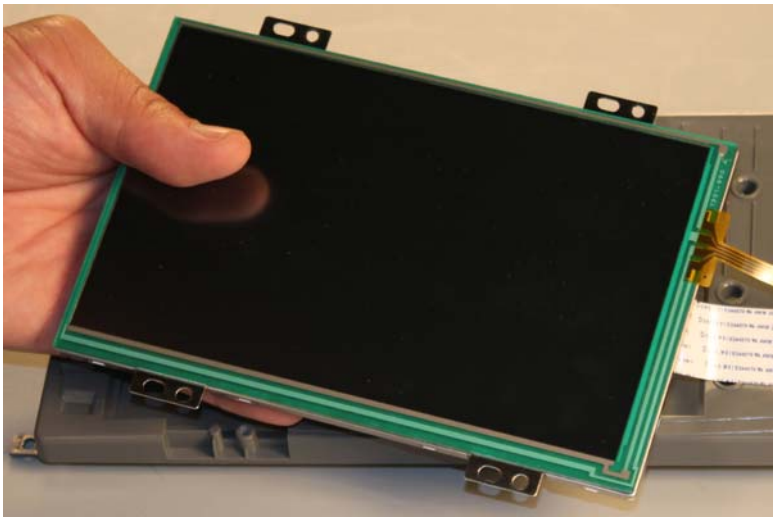
5. Remove the four screws (A) from the LCD.



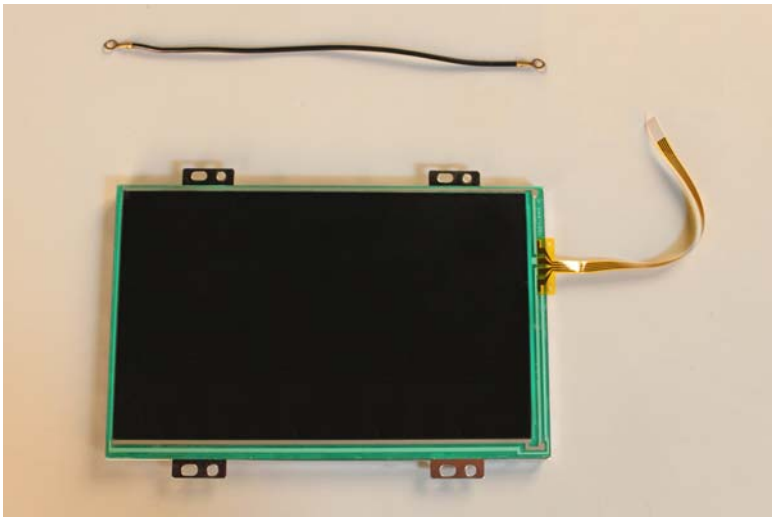
6. Disconnect the two cables (B) from the user interface controller card.



7. Remove the LCD.



The LCD with the ground cable is shown below:

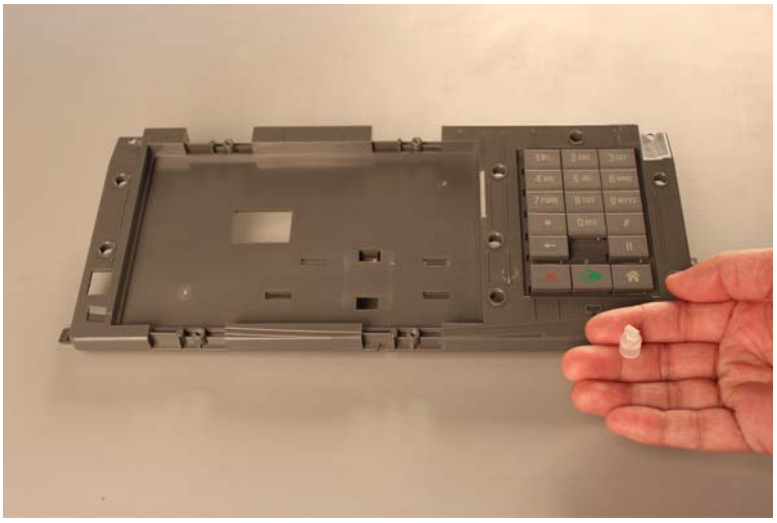


Operator panel assembly removal

1. Remove the AIO rear cable cover. See **“AIO back cable cover removal” on page 4-8**.
2. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
3. Remove the left cover. See **“Left cover removal” on page 4-4**.
4. Remove the ADF unit. See **“Duplex ADF removal” on page 4-87**.
5. Remove the flatbed. See **“Flatbed removal” on page 4-75**.
6. Remove the three screws under the operator panel.
7. Unroute the cables from the flatbed, and remove the operator panel assembly.

Operator panel cover with light pipe removal

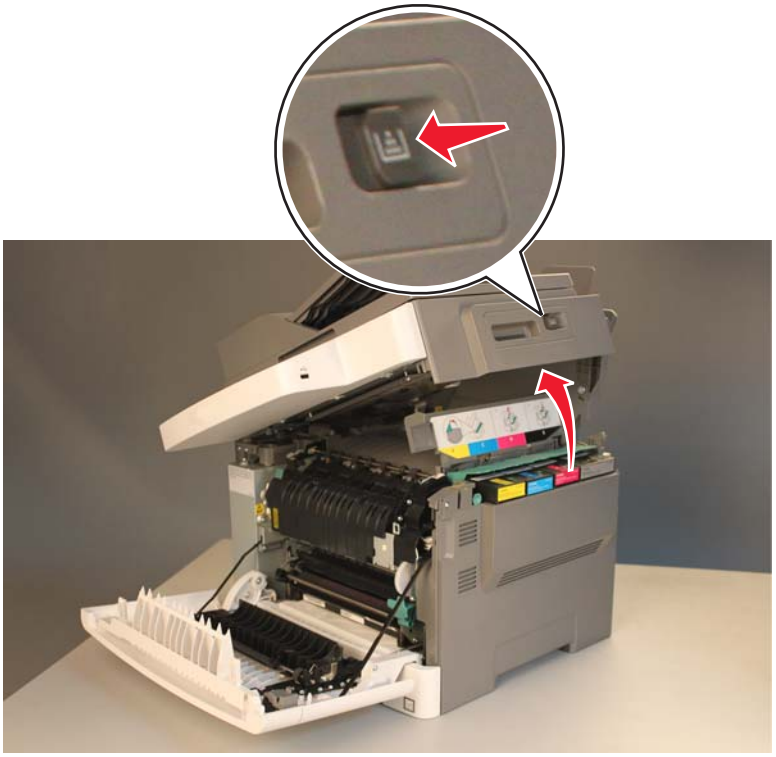
1. Remove the operator panel bezel. See **“Operator panel bezel removal” on page 4-104**.
2. Remove the operator panel frame cover. See **“Operator panel frame cover removal” on page 4-107**.
3. Remove the rear case with speaker. See **“Rear case with speaker removal” on page 4-108**.
4. Remove the sleep button PCB. See **“Sleep button PCB removal” on page 4-110**.
5. Remove the sleep button. See **“Sleep button removal” on page 4-110**.
6. Remove the user interface controller card. See **“User interface controller card removal” on page 4-113**.
7. Remove the LCD. See **“LCD removal” on page 4-100**.
   The operator panel cover with light pipe is shown below:



Operator panel bezel removal

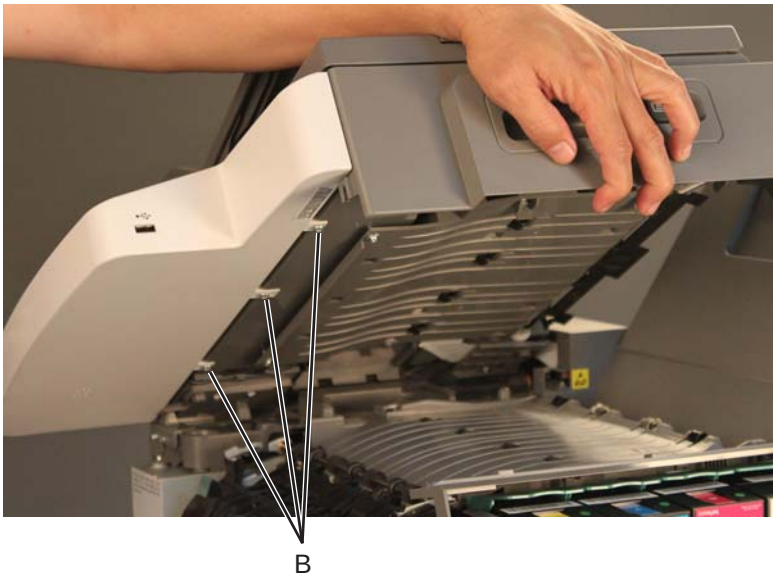
1. Open the front door.

2. Open the top door.

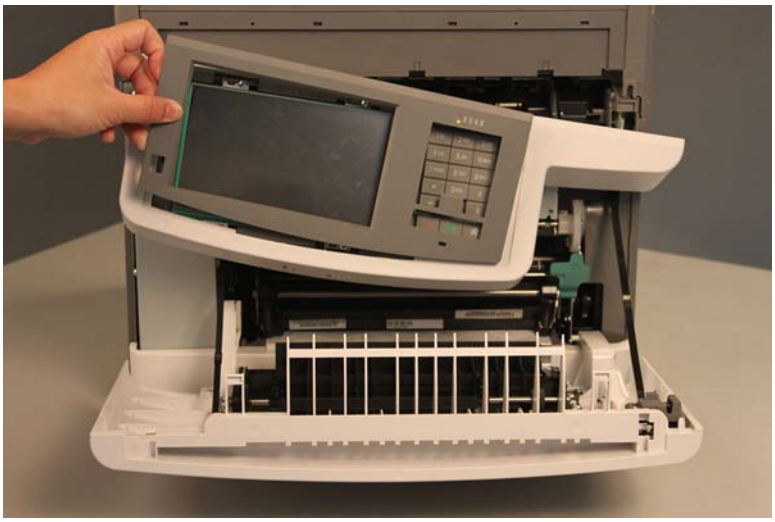


3. Remove the screw (A) from the joint linking the flatbed to the printer.
Warning: Do not over-extend the flatbed when lifting it after the screw (A) has been removed.

4. Remove the three screws (B) under the operator panel.



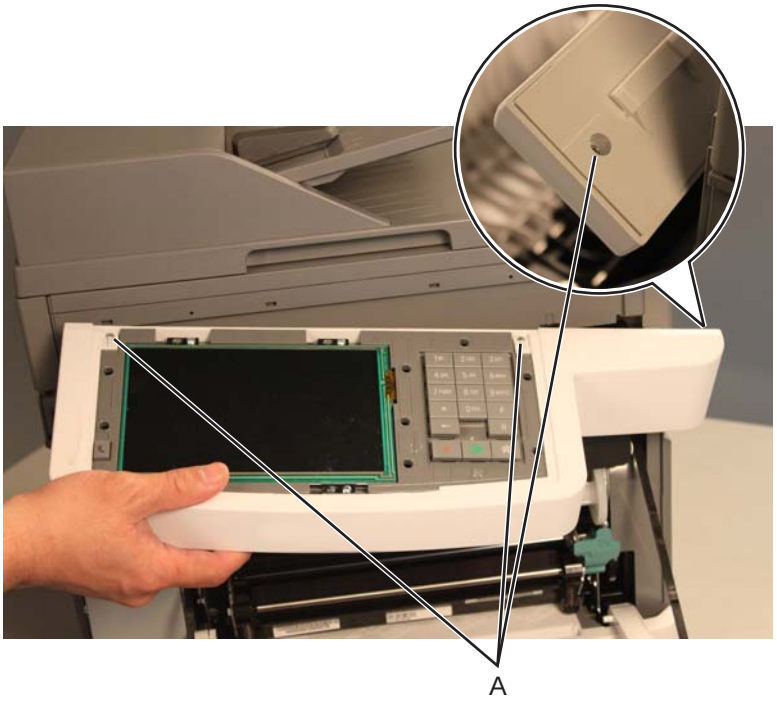
5. Slightly pull the operator panel away from the printer, then pry the operator panel bezel off the operator panel.



Warning: During reinstallation, be sure to properly engage the tabs of the operator panel bezel to their corresponding slots. Failure to align them may cause the tabs to break or deform.

Operator panel frame cover removal

1. Remove the operator panel bezel. See **"Operator panel bezel removal" on page 4-104**.
2. Using a 1.0 Phillips screwdriver, remove the three screws (A) from the rear side of the operator panel.



3. Remove the operator panel frame cover.

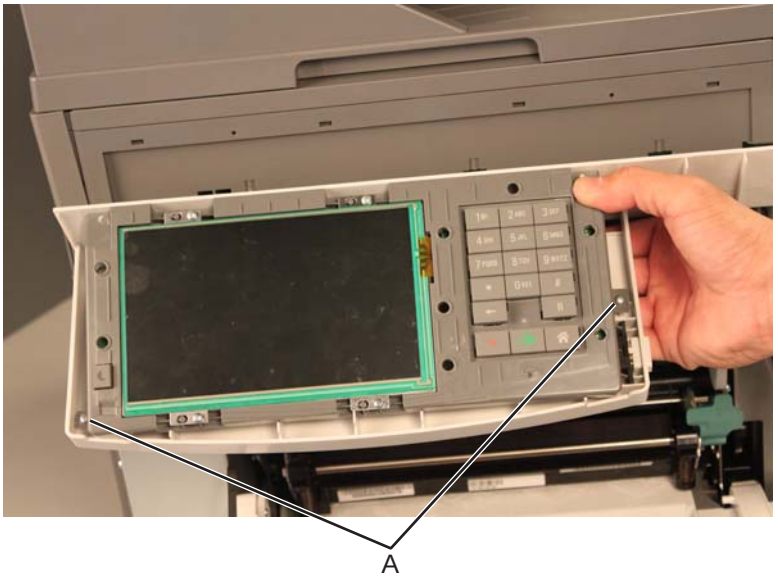
Output bin tray removal

Grasp and lift the rear output bin tray away from the MFP.

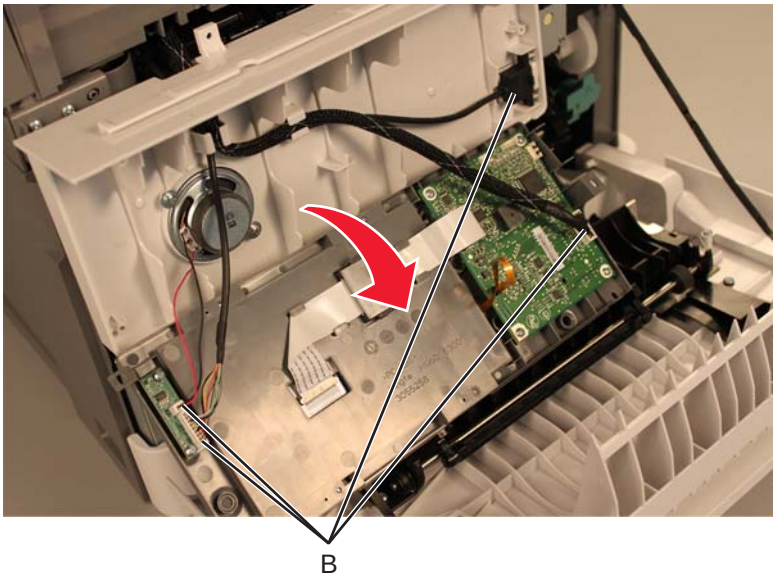
Rear case with speaker removal

The rear case with speaker is not a field replaceable unit (FRU).

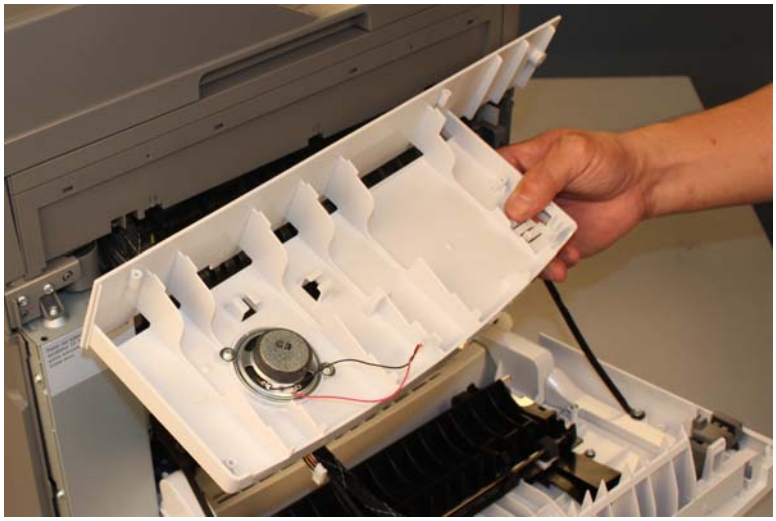
1. Remove the operator panel bezel. See **“Operator panel bezel removal” on page 4-104**.
2. Remove the operator panel frame cover. See **“Operator panel frame cover removal” on page 4-107**.
3. Remove the two screws (A) securing the rear case.



4. Pull the operator panel cover away from the rear case, and disconnect the four cables (B).

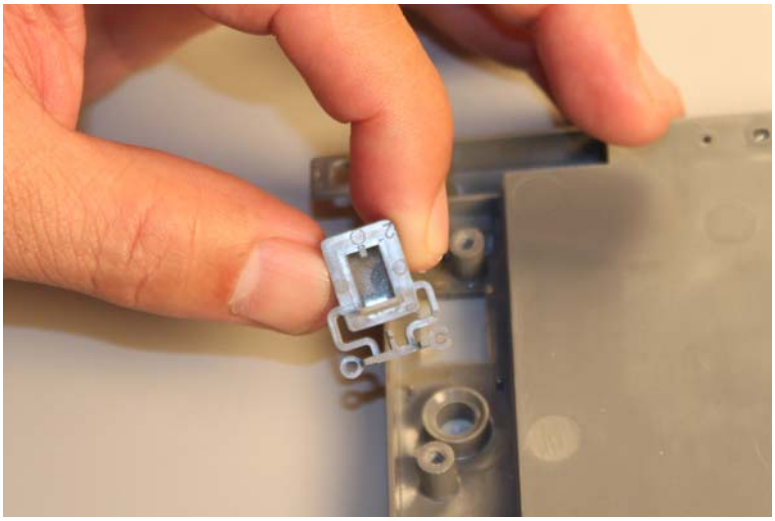


5. Route the cables off the rear case.
6. Remove the rear case with speaker.



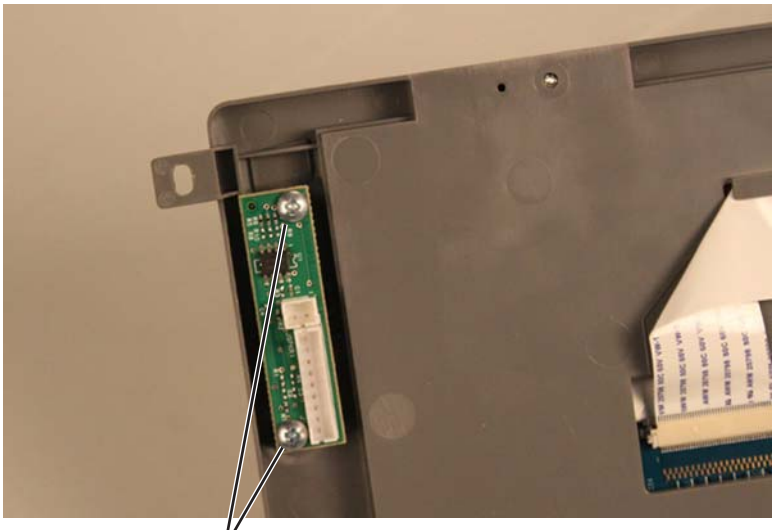
Sleep button removal

1. Remove the operator panel bezel. See **“Operator panel bezel removal” on page 4-104**.
2. Remove the operator panel frame cover. See **“Operator panel frame cover removal” on page 4-107**.
3. Remove the rear case with speaker. See **“Rear case with speaker removal” on page 4-108**.
4. Remove the sleep button PCB. See **“Sleep button PCB removal” on page 4-110**.
5. Remove the sleep button.

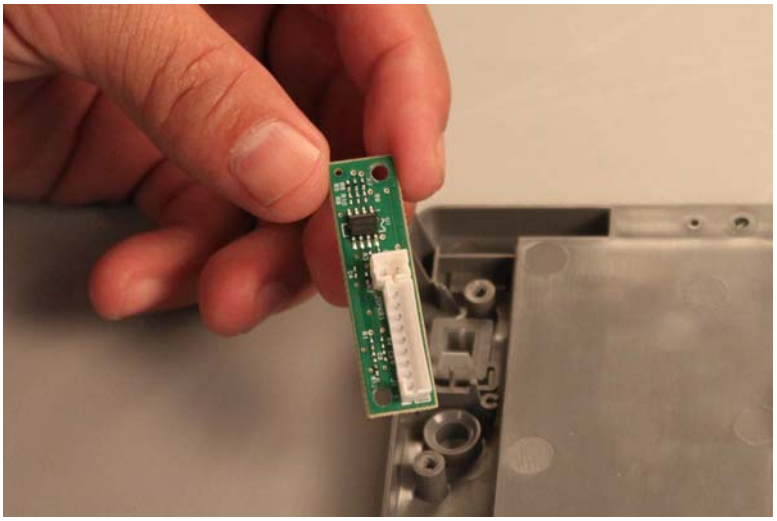


Sleep button PCB removal

1. Remove the operator panel bezel. See **“Operator panel bezel removal” on page 4-104**.
2. Remove the operator panel frame cover. See **“Operator panel frame cover removal” on page 4-107**.
3. Remove the rear case with speaker. See **“Rear case with speaker removal” on page 4-108**.
4. Remove the two screws (A) from the sleep button PCB.

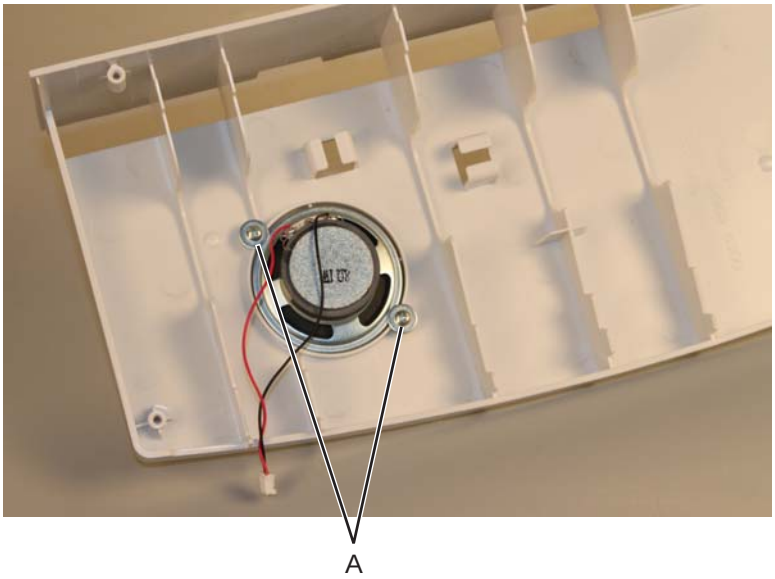


5. Remove the sleep button PCB.

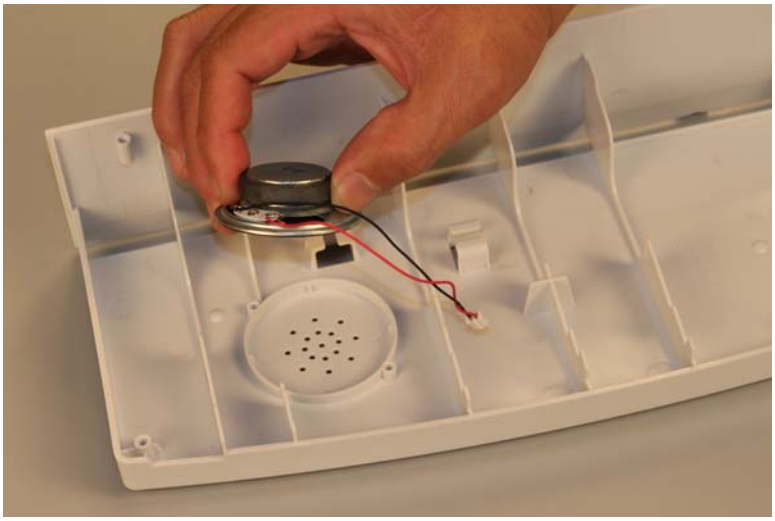


Speaker removal

1. Remove the operator panel bezel. See **“Operator panel bezel removal” on page 4-104**.
2. Remove the operator panel frame cover. See **“Operator panel frame cover removal” on page 4-107**.
3. Remove the rear case with speaker. See **“Rear case with speaker removal” on page 4-108**.
4. Remove the two screws (A) from the speaker.



5. Remove the speaker.



USB cable removal

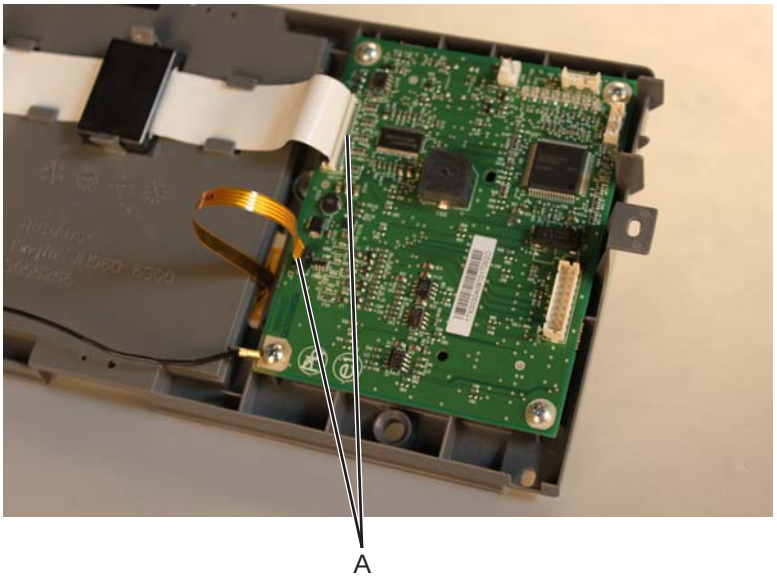
1. Remove the AIO rear cable cover. See **“AIO back cable cover removal” on page 4-8**.
2. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
3. Remove the left cover. See **“Left cover removal” on page 4-4**.
4. Remove the ADF unit. See **“Duplex ADF removal” on page 4-87**.
5. Remove the flatbed. See **“Flatbed removal” on page 4-75**.
6. Remove the operator panel assembly. See **“Operator panel assembly removal” on page 4-102**.
7. Pry the front cover off the operator panel.
8. Remove the two screws securing the rear case to the operator panel cover.
9. Pull the operator panel cover away from the rear case to access the USB cable.
10. Route the USB cable off the rear case and remove.

User interface controller card cable removal

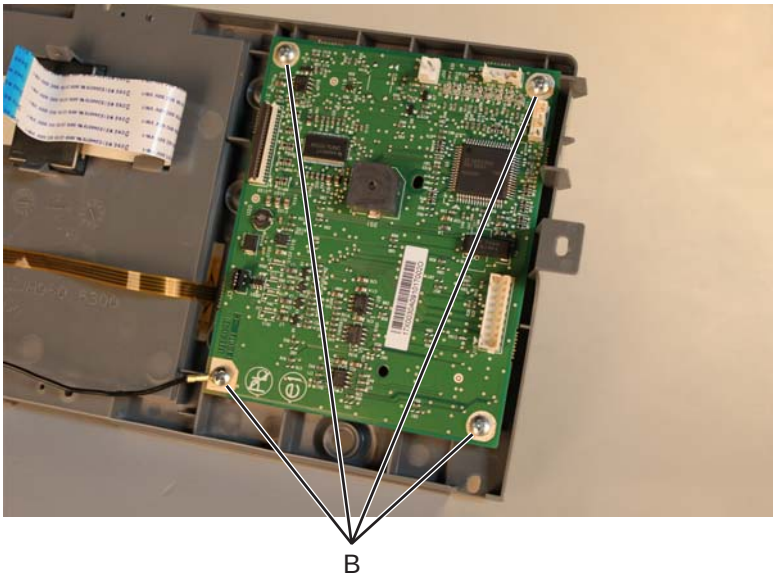
1. Remove the AIO rear cable cover. See **“AIO back cable cover removal” on page 4-8**.
2. Remove the rear shield. See **“Rear shield removal” on page 4-7**.
3. Remove the left cover. See **“Left cover removal” on page 4-4**.
4. Remove the ADF unit. See **“Duplex ADF removal” on page 4-87**.
5. Remove the flatbed. See **“Flatbed removal” on page 4-75**.
6. Remove the operator panel assembly. See **“Operator panel assembly removal” on page 4-102**.
7. Pry the front cover off the operator panel.
8. Remove the two screws securing the rear case to the operator panel cover.
9. Pull the operator panel cover away from the rear case to access the UICC cable.
10. Route the UICC cable off the rear case and remove.

User interface controller card removal

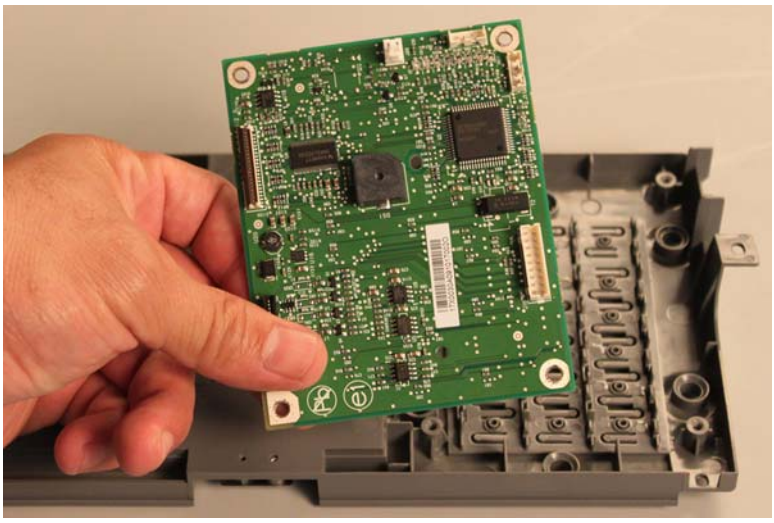
1. Remove the operator bezel cover. See **“Operator panel bezel removal” on page 4-104**.
2. Remove the operator panel frame cover. See **“Operator panel frame cover removal” on page 4-107**.
3. Remove the rear case with speaker. See **“Rear case with speaker removal” on page 4-108**.
4. Disconnect the two cables (A) from the user interface controller card.



5. Remove the four screws (B) from the user interface controller card.



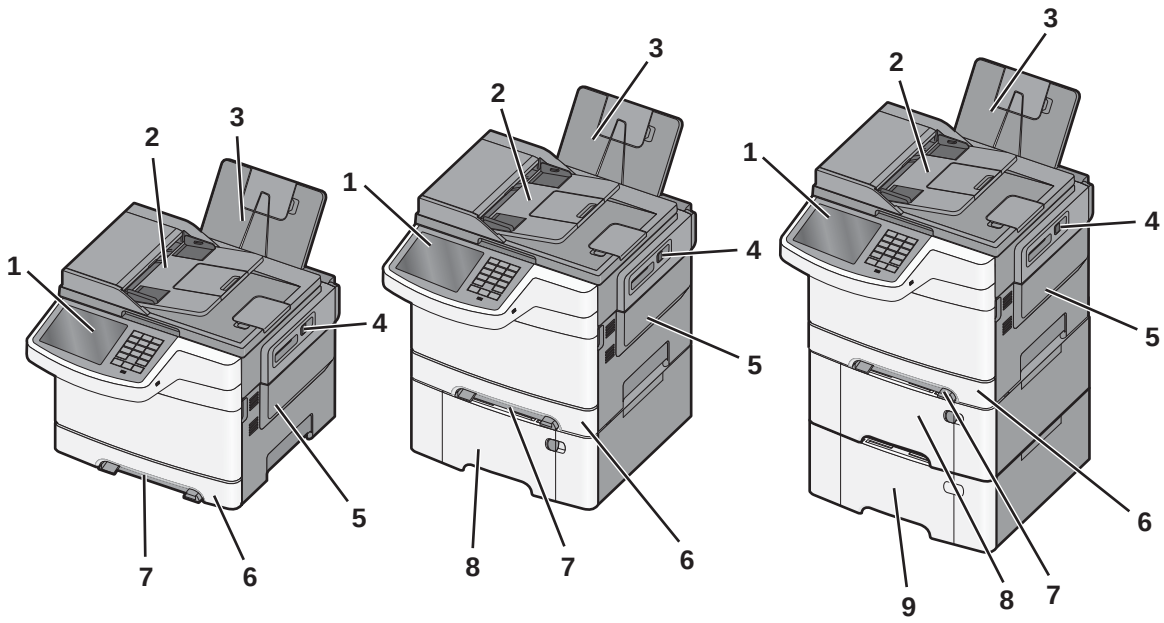
6. Remove the user interface controller card.



5. Locations

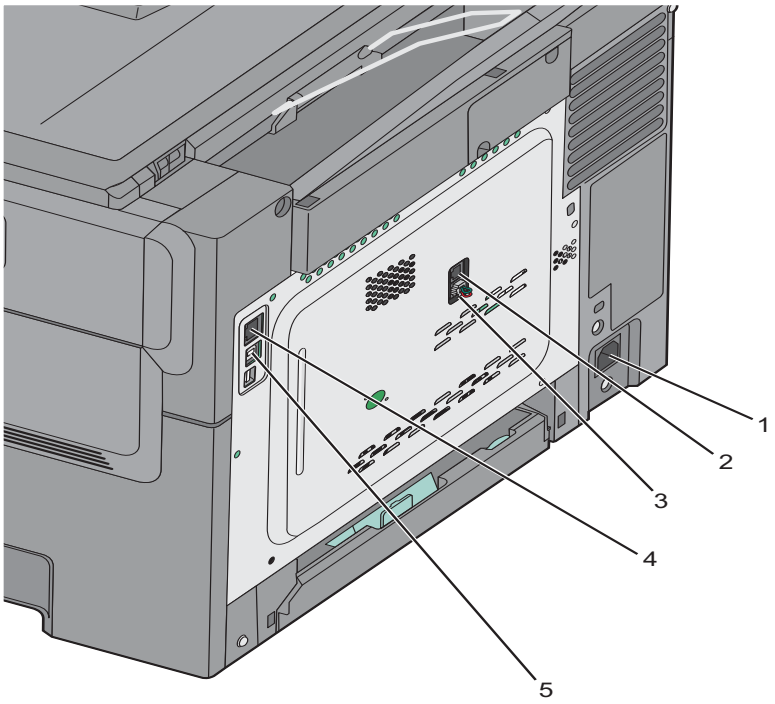
Exterior views

Front



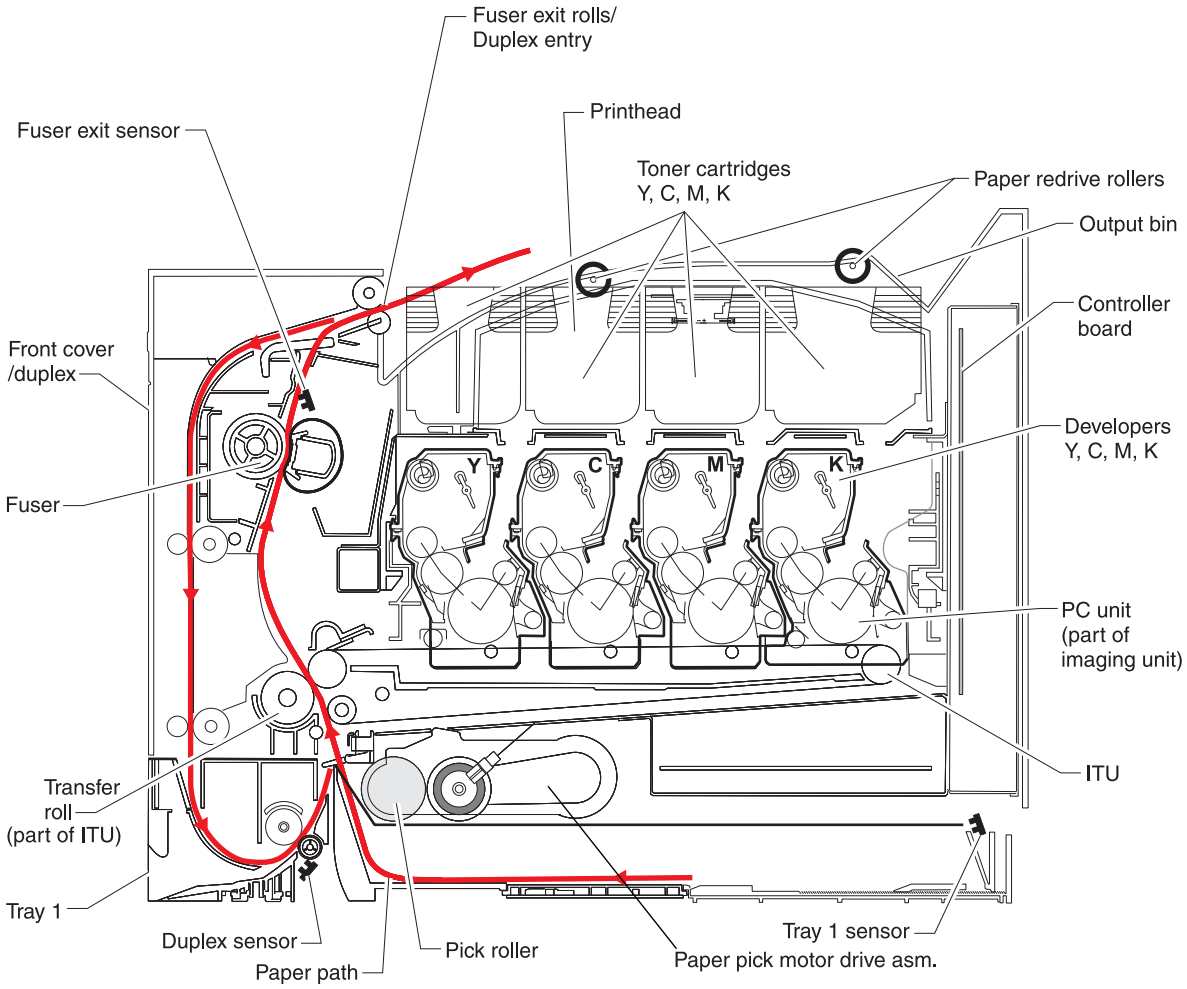
	Part name
1	Operator panel
2	Automatic Document Feeder (ADF)
3	Standard exit bin
4	Top door latch
5	Right side cover
6	Standard 250-sheet tray (Tray 1)
7	Manual feeder
8	650-sheet duo drawer with integrated multipurpose feeder (Tray 2) Note: When used with the 550-sheet tray, the 650-sheet duo drawer must be stacked in the exact position shown in the illustration.
9	Optional 550-sheet tray (Tray 3)

Rear



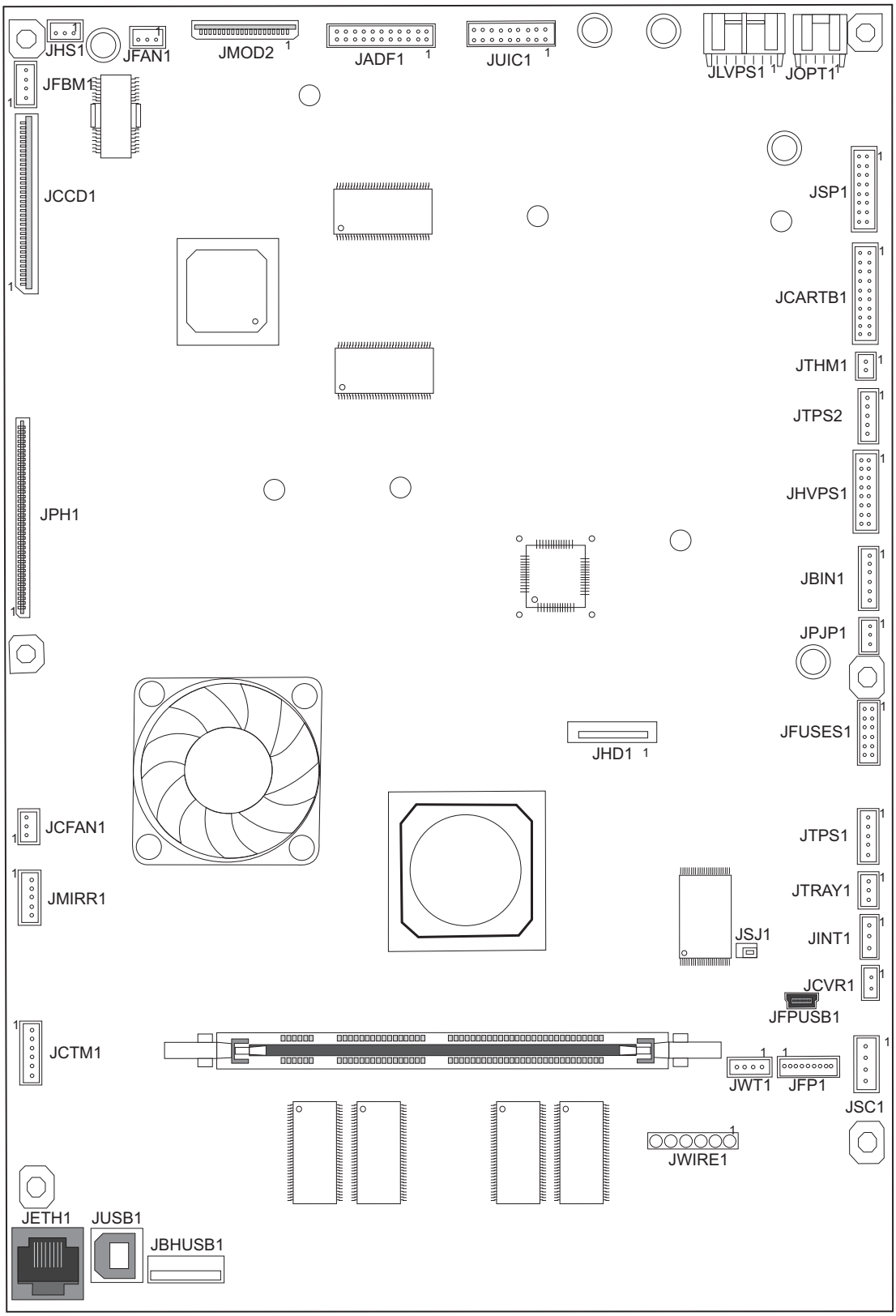
	Part name
1	Power
2	Line
3	Extension
4	Ethernet
5	USB

Print engine interior view



Printer boards

RIP board



Connectors

Previous
Next
Go Back

Connector	Pin no.	Signal
JADF1	1	I0A_ADF_C
	2	I1A_ADF_C
	3	Ground
	4	DIRA_ADF_C
	5	Ground
	6	I0B_ADF_C
	7	I1B_ADF_C
	8	Ground
	9	DIRB_ADF_C
	10	Ground
	11	V_24_ADF
	12	V_24_ADF
	13	Ground
	14	V_5_ADF
	15	PAP_PRES2_2
	16	VREF1_ADF_C
	17	VREF2_ADF_C
	18	PAP_PRES_C
	19	ADF_CVR_C
	20	FIRST_SCAN_C
	21	FB_CVR_C
	22	SOL1_EN_2
JBHUSB1 - Rear USB Host Port	G1	Ground
	1	V_BUSB
	2	USB_DM2
	3	USB_DP1
	4	Ground
	G2	Ground
JBIN1	1	V_BF
	2	S_BIN_FB
	3	Ground
	4	V_BIN_4
	5	FUSER_ES
	6	Ground

Connector	Pin no.	Signal
JCARTB1	1	CART1_HALL_U
	2	NC_CARTB1_2
	3	CART1_HALL_V
	4	V_CART2_WIND_W
	5	CART1_HALL_W
	6	V_CART2_WIND_V
	7	CART1_PG
	8	V_CART2_WIND_U
	9	Ground
	10	+5V
	11	+5V
	12	Ground
	13	V_CART1_WIND_U
	14	CART2_PG
	15	V_CART1_WIND_V
	16	V_CART1_WIND_W
	17	V_CART1_WIND_W
	18	V_CART1_WIND_V
	19	NC_JCARTB1_19
	20	V_CART1_WIND_U

Connector	Pin no.	Signal
JCCD1 - CCD ribbon cable	1	FBR_AFE_SDI
	2	FBR_AFE_SCK
	3	FBR_AFE_SEN
	4	GND
	5	FBR_AFE_D(0)
	6	FBR_AFE_D(1)
	7	GND
	8	FBR_AFE_D(2)
	9	FBR_AFE_D(3)
	10	GND
	11	FBR_AFE_D(4)
	12	FBR_AFE_D(5)
	13	GND
	14	FBR_AFE_D(6)
	15	FBR_AFE_D(7)
	16	GND
	17	FB_AFE_VSMP_R
	18	GND
	19	FB_AFE_RSMP_R
	20	GND
	21	FB_AFE_CLK_R
	22	GND
	23	FB_CCD_CLAMP_R
	24	GND
	25	FB_CCD_RESET_R
	26	GND
	27	FB_CCD_PHASE1_R
	28	FB_CCD_PHASE2_R
	29	GND
	30	FBR_CCD_TRANSFER
	31	+5V
	32	+5V
	33	+14V
	34	+14V
	35	FB_POWER_SAVER_R
	36	FB_LAMP_ON_R
JCFAN1	1	FAN_PWM_PWR
	2	Ground
	3	FAN_SENSE

Connector	Pin no.	Signal
JCTM1	1	+5V
	2	CART_METER_C_IN
	3	CART_METER_M_IN
	4	CART_METER_Y_IN
	5	CART_METER_K_IN
	6	Ground
JCVR1	1	V_24V_CVR, +24V dc
	2	COVER_OPEN (cover open +0V dc; closed: +24V dc)
JFAN1	1	FAN_FG
	2	Ground
	3	V_FAN_P3
JFBM1 - Flatbed Motor	1	FB_A-
	2	FB_A
	3	FB_B
	4	FB_B-
JFP1	1	I2CDATA
	2	LED_DRV_YLW2
	3	I2CCLK
	4	Ground
	5	PWR_BUTTON
	6	+3.5V
	7	Ground
	8	SPEAKER1
	9	SPEAKER2
JFPUSB1 - Operator panel USB port	M1	Ground
	1	V_FUSB
	2	USB_DM1
	3	USB_DP1
	4	Ground
	5	Ground
	M2	Ground

Connector	Pin no.	Signal
JFUSES1	1	V_FUSER_PHA+, +24V dc (doors closed)
	2	V_FUSER_PHA-, +24V dc (doors closed)
	3	V_FUSER_PHB+, +24V dc (doors closed)
	4	V_FUSER_PHB-, +24V dc (doors closed)
	5	FUSER_HR_THM (AVCC), +2.3 V dc
	6	FUSER_HR_THM_RTN
	7	+5V_SW
	8	Ground
	9	S1_MPF_SNS
	10	FUSER_BELT
	11	FUSER_HR_THM_RTN
	12	Ground
JHD1	1	Ground
	2	USBOUT+
	3	USBOUT-
	4	Ground
	5	USBIN+
	6	USBIN-
	7	Ground
	8	A0
	9	RESET
	10	5V
	11	12C_DAT
	12	5V
	13	12C_CLK
	14	5V
JHS1 - Home Sensor	1	+5V
	2	GNDS
	3	HOME_C

Connector	Pin no.	Signal
JHVPS1	1	M_DEV_PWM_OUT
	2	K_DEV_PWM_OUT
	3	C_DEV_PWM_OUT
	4	CMY_CHG_PWM_OUT
	5	Y_DEV_PWM_OUT
	6	K_CHG_PWM_OUT
	7	CMY_SRVO_OUT
	8	ITM_TX_PWM_OUT
	9	CMY_TX_PWM_OUT
	10	ITM_SRVO_OUT
	11	K_SRVO_OUT
	12	K_TX_PWM_OUT
	13	+24V
	14	Ground
	15	5V_HVPS_REF
	16	Ground
JINT1	1	+5V Fused
	2	Ground
	3	VS_INT
JLVPS1	1	+5V
	2	Ground
	3	+5V
	4	Ground
	5	+5V
	6	Ground
	7	+24VC
	8	Ground
	9	+24VC
	10	Ground
	11	+24VC
	12	Ground
	13	RELAY_DRIVE
	14	ZERO_XING_IN
	15	HEAT1_ON
	16	GND

Connector	Pin no.	Signal
JMIRR1	1	MM_REFR
	2	MM_LOCK, +3.3 V dc
	3	MM_START
	4	GND
	5	+24V_VC
JMOD2	1	NC_30V_CUHD
	2	NC_JMOD2_2
	3	POR_CHUD_R-
	4	+3.3V
	5	+3.3V
	6	NC_TONE_CUHD
	7	+5V
	8	IRQ_CUHD
	9	Ground
	10	SDA_CUHD
	11	Ground
	12	SCL_CUHD
	13	Ground
	14	CLK_CUHD
	15	Ground
	16	SDO_CUHD
	17	Ground
	18	SDI_CUHD
	19	Ground
	20	CS_CUHD
JOPT1	1	TXD_PP
	2	Ground
	3	Ground
	4	RXD_PP
	5	+24V
	6	Ground
	7	+5V_OPTIONS, +5 V dc
	8	S2
	9	Ground
	10	Ground

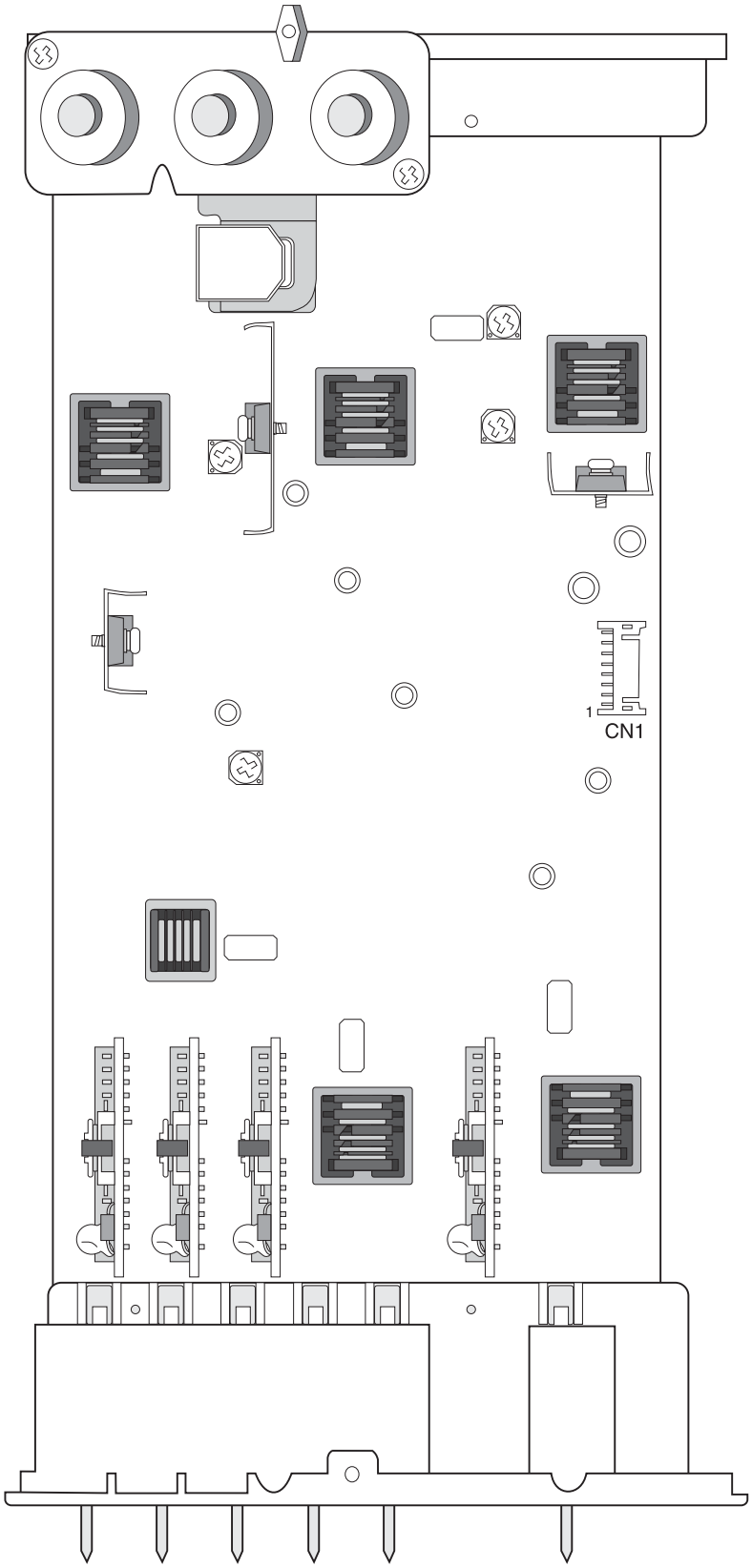
Connector	Pin no.	Signal
JPH1	1	VDO_HSYNC1_C, + 5 V dc
	2	VDO_PH_OK, +3.3 V dc
	3	VDO_HSYNC0, + 5 V dc
	4	VDO_LEN0, +3.3 V dc
	5	VDO_BOOST3
	6	+3.3V
	7	VDO_BOOST1
	8	+5V_PH, + 5 V dc
	9	VDO_BOOST2 (Shade B)
	10	+5V_PH, + 5 V dc
	11	VDO_BOOST0
	12	Ground
	13	D_VDO_7+
	14	D_VDO_7-, + 1.5 V dc
	15	Ground
	16	D_VDO_3+, + 1.5 V dc
	17	D_VDO_3-
	18	Ground
	19	D_VDO_6+
	20	D_VDO_6-

Connector	Pin no.	Signal
JPH1 (continued)	21	Ground
	22	D_VDO_2+
	23	D_VDO_2-
	24	Ground
	25	D_VDO_5+
	26	D_VDO_5-
	27	Ground
	28	D_VDO_1+
	29	D_VDO_1-
	30	Ground
	31	D_VDO_4+
	32	D_VDO_4-
	33	Ground
	34	D_VDO_0+
	35	D_VDO_0-
	36	Ground
	37	I2CCLK_PH
	38	VDO_LADJ1, + 3.3 V dc
	39	I2CDATA_PH
	40	VDO_LADJ, + 3.3 V dc
JPJP1	1	+5V_SW
	2	PAPER_JAM_DET
	3	Ground
JSC1	1	V_CART_3V (+3.3V)
	2	DATA_SC, +3.3V dc
	3	CLK_SC
	4	Ground
JSJ1	1	+3.3v
	2	Ground
	3	Ground

Connector	Pin no.	Signal
JSP1	1	ANODE (no wire)
	2	M1_OUT1, +24 V dc (0V dc with door open)
	3	CATHODE
	4	M1_OUT2, +24 V dc (0V dc with door open)
	5	(+5V SW) VCC
	6	Ground (no wire)
	7	Ground
	8	CATHODE
	9	VOUTA
	10	+5V
	11	VOUTB
	12	ANODE
	13	Ground (no wire)
	14	ANODE
	15	+5V
	16	CATHODE (Ground)
JTHM1	1	TPS_THERM_SNS, +1.5 V dc
	2	TPS_SNS_RTN, Ground
JTPS1	1	ANODE
	2	CATHODE
	3	Ground (Anode - no wire)
	4	(TPS2_ON)+5V_SW
	5	Ground
JTPS2	1	ANODE
	2	CATHODE
	3	Ground
	4	(TPS2_ON)+5V_SW
	5	Ground
JTRAY1	1	ANODE (to+5V_SW)
	2	DUPLEX_ENT, +5 V dc
	3	CATHODE (Ground)

Connector	Pin no.	Signal
JUIC1	1	UI_RESET_NR
	2	Ground
	3	Y1M_LVDS
	4	Y1P_LVDS
	5	Y2M_LVDS
	6	Y2P_LVDS
	7	CLK_TX
	8	CLK_TX+
	9	Ground
	10	5.0 V dc
	11	RXD232_N
	12	TXD232_N
	13	Y0M_LVDS
	14	Y0P_LVDS
	15	Ground
	16	5.0 V dc
	17	5.0 V dc
	18	5.0 V dc
JUSB1 Port	G1	Ground
	1	USB_5V_Sense
	2	USB D-
	3	USB D+
	4	Ground
	G2	Ground
JWIN1	1	Ground
	2	+5V
	3	TXD1
	4	+5V
JWT1	1	SENSE
	2	VREF
	3	VAC
	4	GND

HVPS

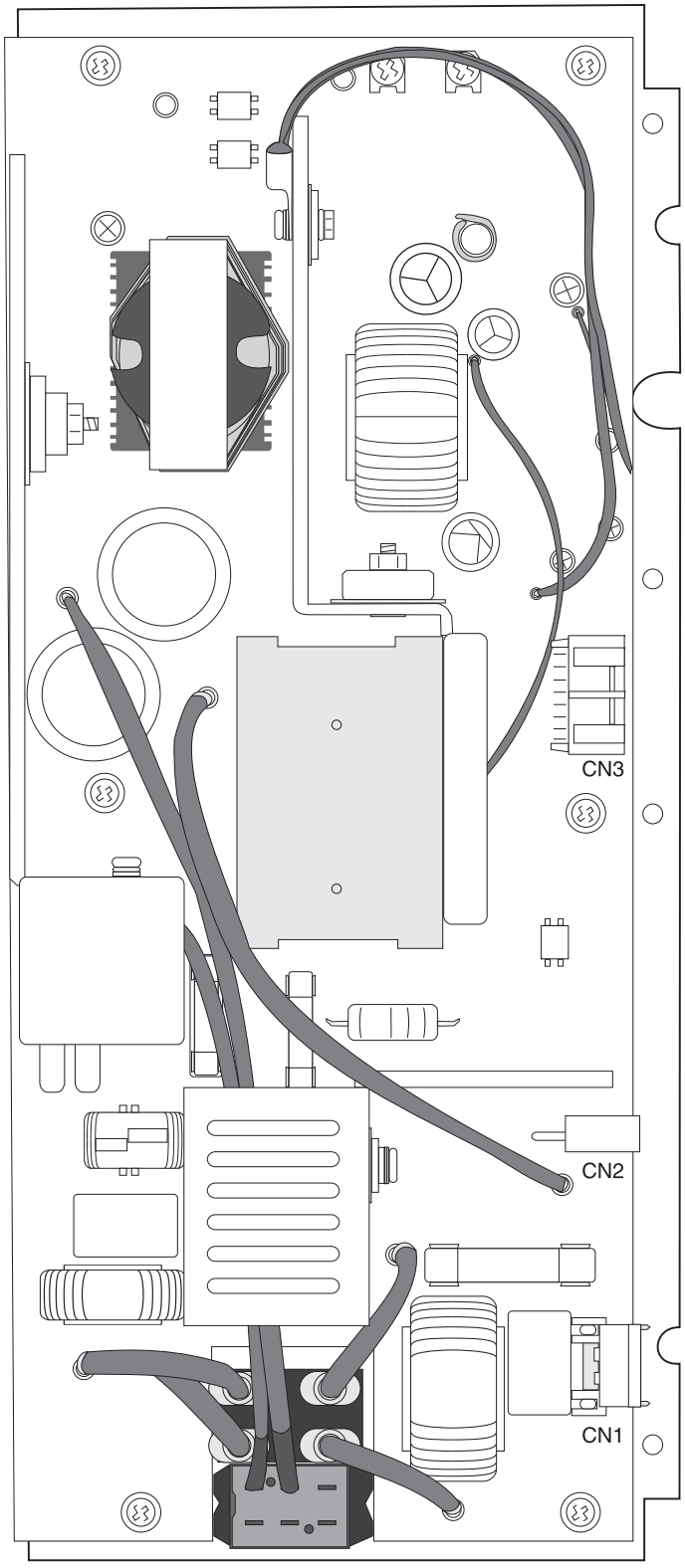


Connectors

HVPS board

Connector	Pin no.	Signal
Connection from RIP board	1	M-Drpwm
	2	K-Drpwm
	3	C-Drpwm
	4	CMY-Chrgpwm
	5	Y-Drpwm
	6	K-Chrgpwm
	7	CMY-Srvo_Out
	8	I-Txpwm
	9	CMY-Txpwm
	10	I-Srvo_Out
	11	K-Srvo_Out
	12	K-Txpwm
	13	+24V
	14	+24VRtn
	15	VREF Buffered
	16	+24VRtn
Contacts to machine	1	I-Transfer
	2	CMY-Transfer
	3	K-Transfer
	4	K-Charge
	5	CMY-Charge
	6	K-DR Blade
	7	M-DR Blade
	8	C-DR Blade
	9	Y-DR Blade
	10	Ground

LVPS

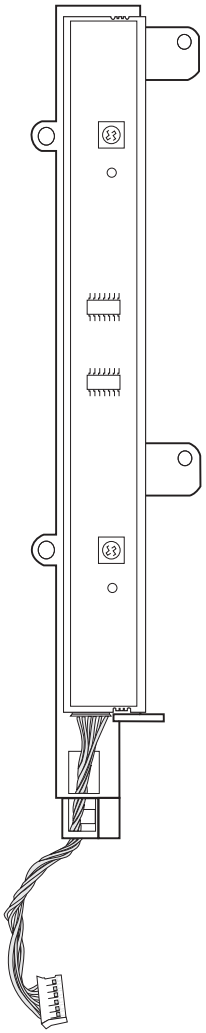


Connectors

LVPS board

Connector	Pin no.	Signal
CN1	1	+5 V
	2	Ground
	3	+5 V
	4	Ground
	5	+5 V
	6	Ground
	7	+24 V
	8	Ground
	9	+24 V
	10	Ground
	11	+24 V
	12	Ground
	13	Relay drive
	14	ZC out
	15	Heat On
	16	NC
CN2	1	AC phase input
	2	AC neutral input
CN3	1	AC out
	29	AC load phase

Toner meter card



Connectors

Toner meter card

Connector	Pin no.	Signal
From JCTM1 connector on the RIP board	1	+5 V_SW
	2	Cart_Meter_C_IN
	3	Cart_Meter_M_IN
	4	Cart_Meter_Y_IN
	5	Cart_Meter_K_IN
	6	Ground

6. Preventive maintenance

This chapter describes procedures for printer preventive maintenance. Follow these recommendations to help prevent problems and maintain optimum performance.

Safety inspection guide

The purpose of this inspection guide is to aid you in identifying unsafe conditions.

If any unsafe conditions exist, find out how serious the hazard could be and if you can continue before you correct the hazard.

Check the following items:

- Damaged, missing, or altered parts, especially in the area of the On/Off switch and the power supply
- Damaged, missing, or altered covers, especially in the area of the top cover and the power supply cover
- Possible safety exposure from any non-Lexmark attachments

Scheduled maintenance

Customer replacable units (CRUs)

The following parts also need to be checked for wear or damage, and replaced if necessary.

Part number	Description	Replacement life
40X5168	Pick tire replacement CRU	120,000 pages (sides)
40X7545	ADF separator roll replacement CRU	60,000 pages (sides)
40X8419	ADF separator pad replacement CRU	60,000 pages (sides)

Maintenance kit

After 60,000 printed pages (sides), a maintenance kit may be required. It is necessary to replace the fuser assembly, ITU, and duplex reference plate to maintain the print quality and reliability of the printer. The parts are available as a maintenance kit with the following part numbers:

Description	Part number
115 V Maintenance kit (115 V fuser, ITU, duplex reference edge)	40X2254
230 V Maintenance kit (230 V fuser, ITU, duplex reference edge)	40X2255
100 V Maintenance kit (100 V fuser, ITU, duplex reference edge)	40X2261

Lubrication specifications

Lubricate only when parts are replaced or as needed, not on a scheduled basis. Use of lubricants other than those specified can cause premature failure. Some unauthorized lubricants may chemically attack polycarbonate parts. Use IBM no. 10 oil, P/N 1280443 (Approved equivalents: Mobil DTE27, Shell Tellus 100, Fuchs Renolin MR30), IBM no. 23 grease (Approved equivalent Shell Darina 1), and grease, P/N 99A0394 to lubricate appropriate areas. Use Nyogel type 774 to lubricate the Fuser Drive Assembly and Nyogel 744 to lubricate the ITU and Cartridge Drive assemblies.

Cleaning the printer

Cleaning the exterior of the printer

CAUTION—SHOCK HAZARD

To avoid the risk of electric shock when cleaning the exterior of the printer, unplug the power cord from the wall outlet and disconnect all cables to the printer before proceeding.

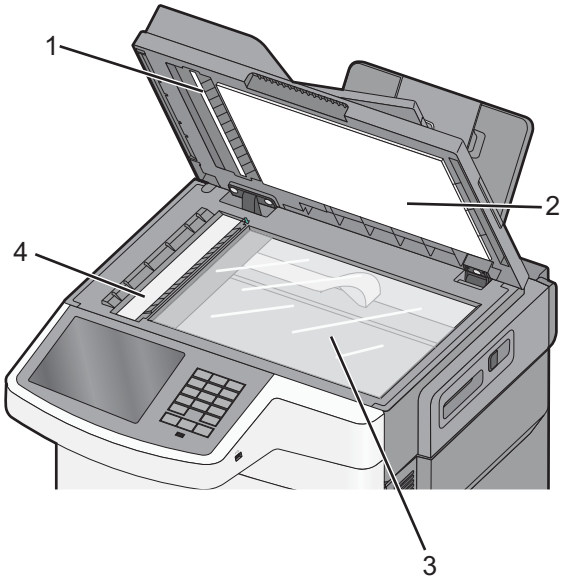
1. Make sure that the printer is turned off and unplugged from the wall outlet.
2. Remove paper from the standard exit bin.
3. Dampen a clean, lint-free cloth with water.
   Warning: Do not use household cleaners or detergents, as they may damage the printer's finish.
4. Wipe only the outside of the printer, making sure to include the standard exit bin.
   Warning: Using a damp cloth to clean the interior may cause damage to your printer.
5. Make sure the paper support and standard exit bin are dry before beginning a new print job.

Cleaning the scanner glass

Clean the scanner glass if you encounter print quality problems, such as streaks on copied or scanned images.

Note: Clean both areas of the scanner glass and both white underside areas.

1. Slightly dampen a soft, lint-free cloth or paper towel with water.
2. Open the scanner cover.



	Part name
1	White underside ADF cover
2	White underside scanner glass cover
3	Scanner glass
4	ADF glass

3. Wipe the scanner glass until it is clean and dry.
4. Wipe the white underside of the scanner cover until it is clean and dry.
5. Close the scanner cover.

7. Parts catalog

How to use this parts catalog

The following legend is used in the parts catalog:

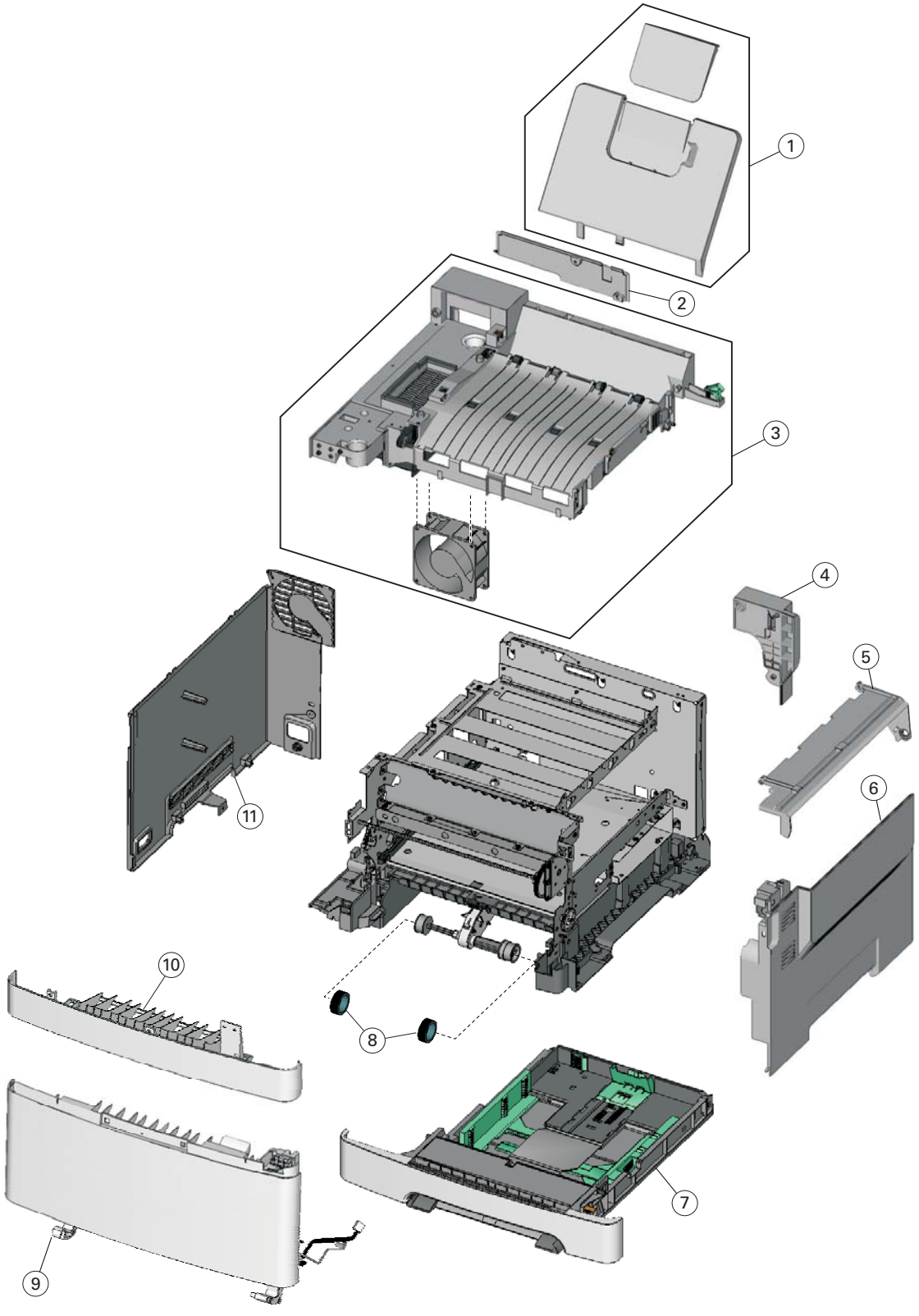
Asm-index	Part number	Units/mach - or - Units/option	Units/ FRU	Description

- **Asm-index**: Identifies the assembly and the item in the diagram. For example, 3-1 indicates Assembly 3 and item number 1 in the table.
- **Part number**: Refers to the unique number that identifies the FRU.
- **Units/mach**: Refers to the number of units actually used in the base machine or product.
- **Units/option**: Refers to the number of units in a particular option. It does not include the rest of the base machine.
- **Units/FRU**: Refers to the number of units packaged together and identified by the part number.
- **NS**: (Not shown) in the Asm-Index column indicates that the part is procurable but is not pictured in the illustration.
- **PP**: (Parts Packet) in the parts description column indicates the part is contained in a parts packet.
- Model information used in the parts catalog:

The Lexmark X548 series MFPs are available in the following models:

Machine type/model	Product name	Description
7525-630	Lexmark X548de	Duplex printer, duplex ADF, touch panel, modem
7525-631	Lexmark X548de	Duplex printer, duplex ADF, touch panel
7525-632	Lexmark X548dte	Duplex printer, duplex ADF, touch panel, hard drive, modem
7525-636	Lexmark X548dte	Duplex printer, duplex ADF, touch panel, hard drive

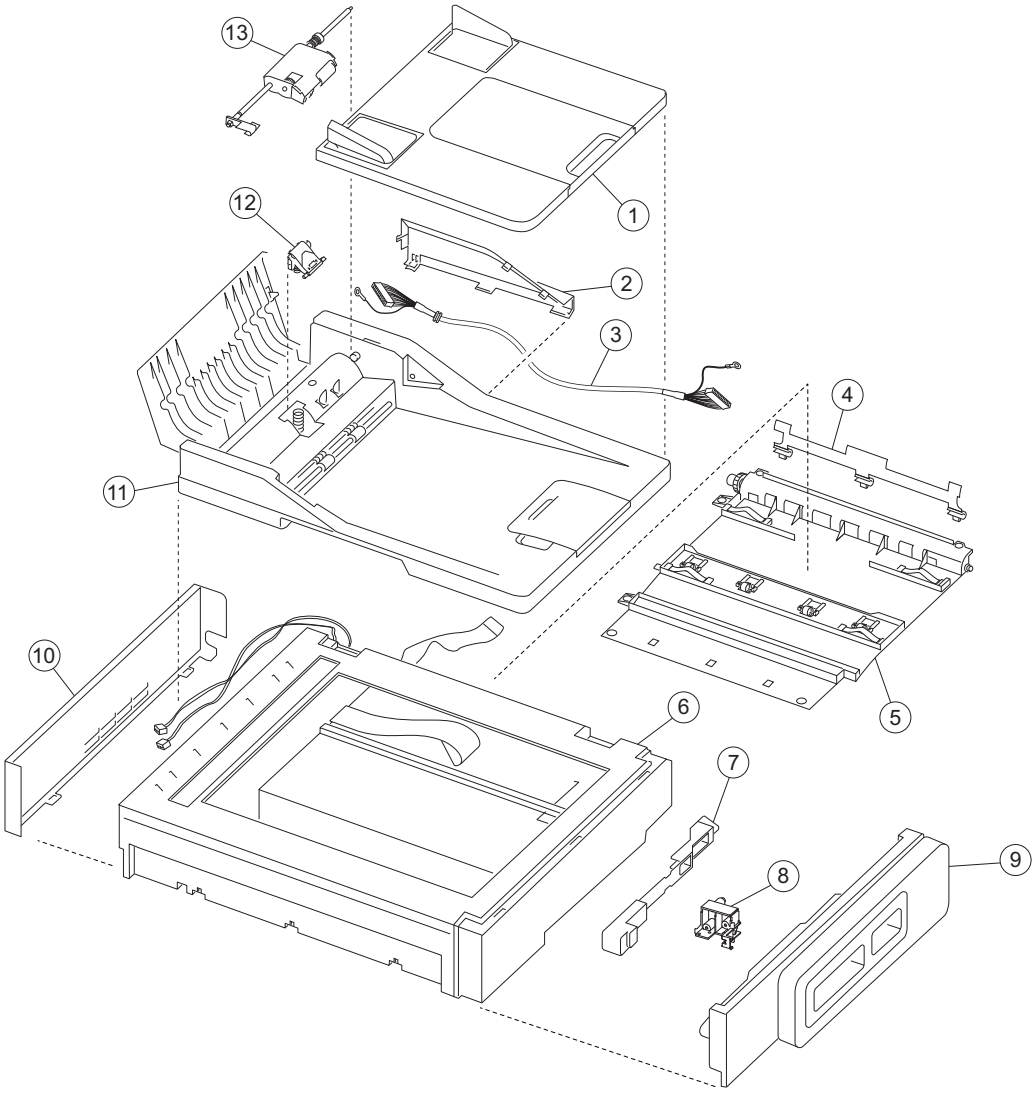
Assembly 1: Covers



Assembly 1: Covers

Asm-index	Part number	Units/ mach	Units/ FRU	Description
1-1	40X5484	1	1	Tray, Output bin
2	40X5489	1	1	Cover, AIO back cable
3	40X5482	1	1	Assembly, Top cover
4	40X5537	1	1	Link, AIO
5	40X5534	1	1	Cover, AIO toner
6	40X5486	1	1	Cover, Right AIO
7	40X5419	1	1	Tray asm, 250-sheet
8	40X5168	2	2	Pick tires
9	40X5538	1	1	Cover, Front
10	40X5490	1	1	Cover, Front middle
11	40X5417	1	1	Cover, Left
NS	40X5441	1	1	Cover, Legal extender
NS	40X2253	1	1	Front flatbed hinge

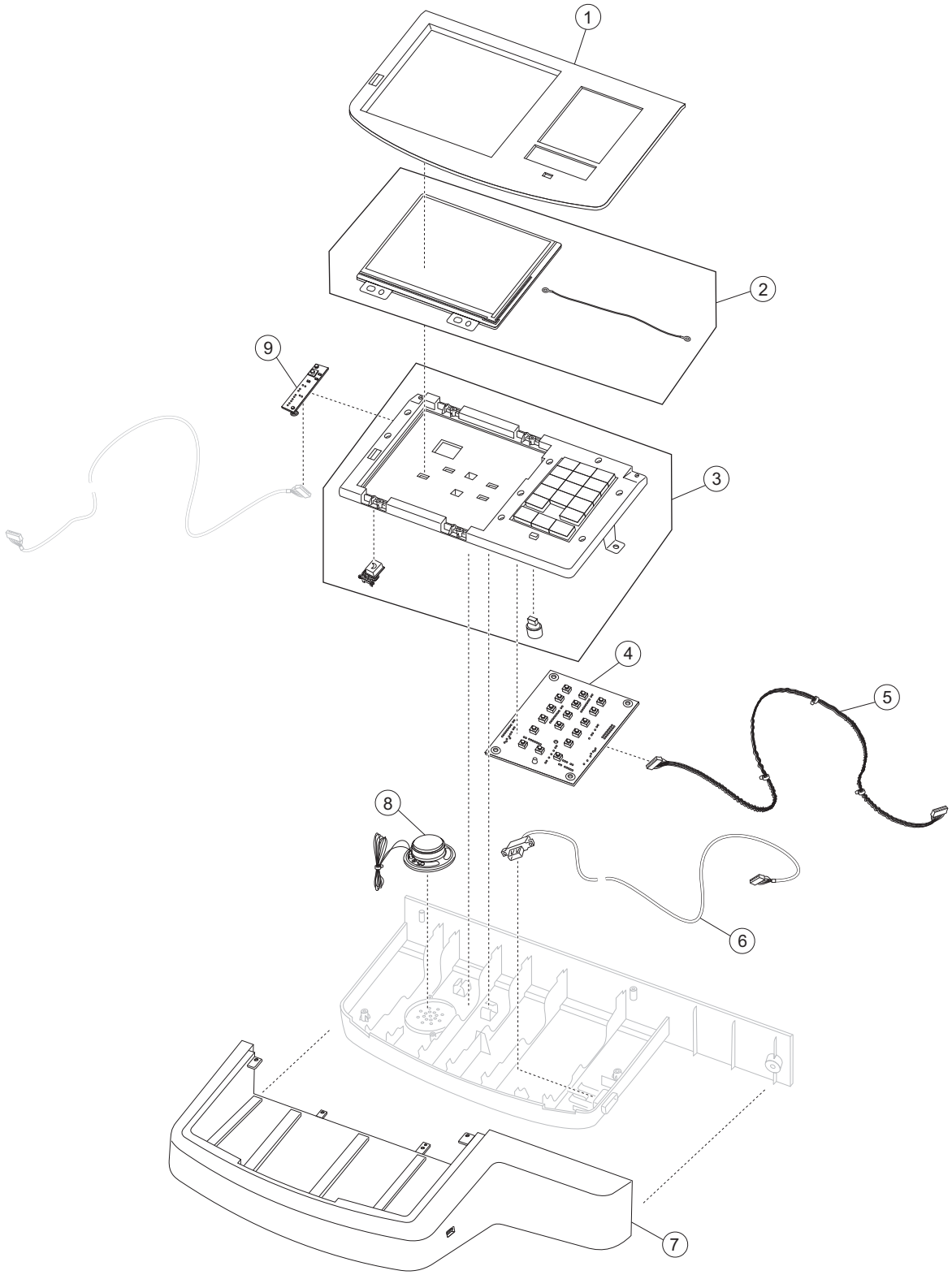
Assembly 2: Scanner



Assembly 2: Scanner

Asm-index	Part number	Units/ mach	Units/ FRU	Description
2-1	40X5470	1	1	Tray, ADF input
2	40X5478	1	1	Cover, ADF rear duplex
3	40X5479	1	1	Cable, ADF
4	40X5872	1	1	Bin full flag
5	40X8342	1	1	Asm, Redrive
6	40X7529	1	1	Asm, LED flatbed
7	40X5536	1	1	Lever, AIO release
8	40X1569	1	1	Flatbed pivot link
9	40X5487	1	1	Cover, Scanner right
10	40X5488	1	1	Cover, Scanner left
11	40X8092	1	1	Asm, Duplex ADF
12	40X8419	1	1	ADF separator pad replacement CRU
13	40X7545	1	1	ADF separator roll replacement CRU
NS	40X5535	1	1	Flatbed cushion, duplex
NS	40X2252	1	4	Redrive spacer screws

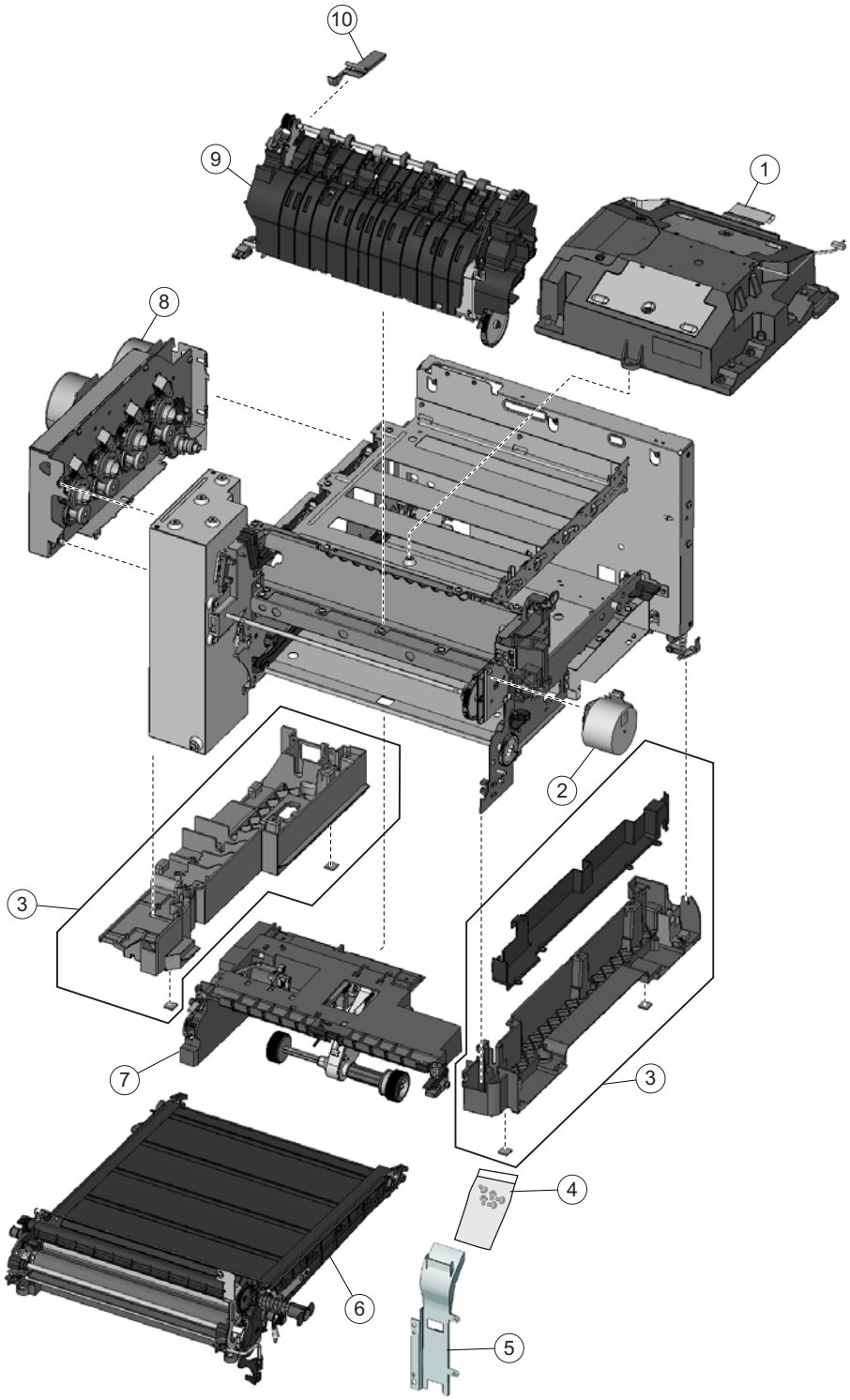
Assembly 3: Operator panel



Assembly 3: Operator panel

Asm-index	Part number	Units/ mach	Units/ FRU	Description
3-1	40X6523	1	1	Cover, Operator panel bezel
2	40X6521	1	1	Display, 7-inch LCD (with ground cable)
3	40X6519	1	1	Cover, Operator panel with keypads, sleep button and light pipe
4	40X6515	1	1	PCBA, UICC
5	40X6516	1	1	Cable, UICC
6	40X5480	1	1	Cable, USB (for thumbdrive)
7	40X6520	1	1	Cover, Operator panel frame
8	40X6517	1	1	Speaker
9	40X6518	1	1	EPROM, PCBA

Assembly 4: Paperpath

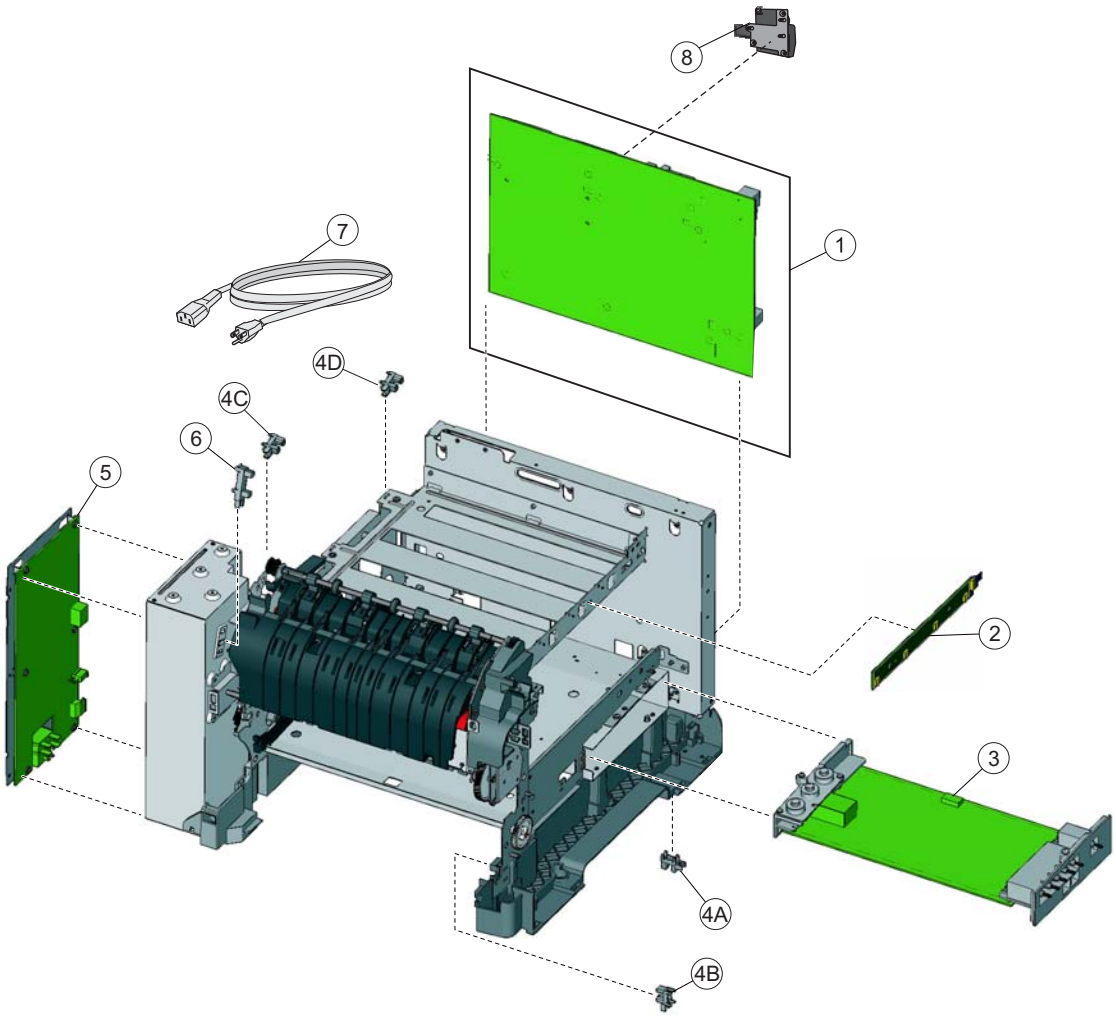


Assembly 4: Paperpath

Previous
Next
Go Back

Asm-index	Part number	Units/ mach	Units/ FRU	Description
4-1	40X5411	1	1	Printhead
2	40X5415	1	1	Fuser drive motor assembly
3	40X5422	1	1	Bottom left and right frame and cable cover
4	40X5424	1	1	Screw packet, miscellaneous screws • TAPTITE M3 L6 PANHD(4) • Tray Bias (2) • Fuser Latch (2) • ITU Front Hold Down (1) • Front Cover Latch Spring (2) • M3 x 6 Pan Head (2) • M3 x 6 Shoulder (1) • M3.5 X 5 Flat Head Plastite (1) • METAL ROLN M3.5 8L (2) • PLAST ROLN 2.9 8L (2) • PLAST ROLN 3.5 6L (4)
5	40X5803	1	1	Duplex reference edge
6	40X5403	1	1	Image transfer unit (ITU) assembly
7	40X1557	1	1	(ACM) Paper pick motor drive assembly
8	40X5412	1	1	Main drive gear assembly, with motors
9	40X7562	1	1	Fuser assembly, 110 V
9	40X7563	1	1	Fuser assembly, 220 V
9	40X7564	1	1	Fuser assembly, 100 V
10	40X0411	1	1	Narrow media flag
NS	40X2261	1	1	100 V Maintenance kit
NS	40X2254	1	1	115 V Maintenance kit
NS	40X2255	1	1	230 V Maintenance kit
NS	40X8674	1	1	Front toner-door pivot

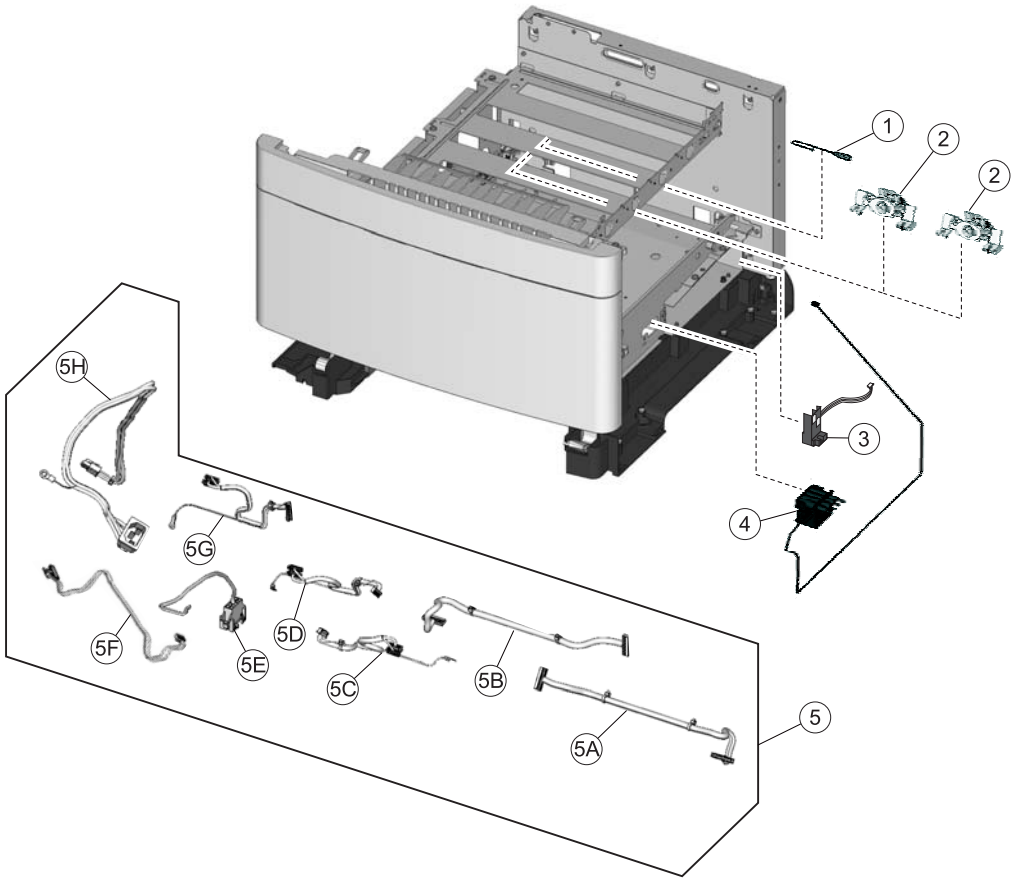
Assembly 5: Electronics 1



Assembly 5: Electronics 1

Asm-index	Part number	Units/ option	Units/ FRU	Description
5-1	40X6514	1	1	RIP board
2	40X5404	1	1	Toner meter cycle card assembly
3	40X8395	1	1	High-voltage power supply
4	40X5426	3	1	Photo sensor (one per package) used for: A—Tray present B—Duplex C—Narrow Media D—Exit bin
5	40X5409	1	1	Low-voltage power supply (universal power supply)
6	40X5413	1	1	Fuser exit sensor
7	40X0269	1	1	Power cord, 2.5 m (straight)—USA, Canada
7	40X3141	1	1	Power cord, 2.5 m (straight)—Europe and others
7	40X0288	1	1	Power cord, 2.5 m (straight)—Argentina
7	40X0271	1	1	Power cord, 2.5 m (straight)—United Kingdom
7	40X0275	1	1	Power cord, 2.5 m (straight)—Israel
7	40X1772	1	1	Power cord, 2.5 m (straight)—Switzerland
7	40X1773	1	1	Power cord, 2.5 m (straight)—South Africa
7	40X0273	1	1	Power cord, 2.5 m (straight)—Traditional Italy
7	40X1774	1	1	Power cord, 2.5 m (straight)—Denmark
7	40X4596	1	1	Power cord, 2.5 m (straight)—Brazil
7	40X0303	1	1	Power cord, 2.5 m (straight)—PRC
7	40X0270	1	1	Power cord, 2.5 m (straight)—Japan
7	40X1792	1	1	Power cord, 2.5 m (straight)—Korea
7	40X1791	1	1	Power cord, 2.5 m (straight)—Taiwan
7	40X0301	1	1	Power cord, 2.5 m (straight)—Australia
8	40X7054	1	1	Fax PCBA
NS	40X5485	1	1	Fax interface cable
NS	40X7058	1	1	Hard drive

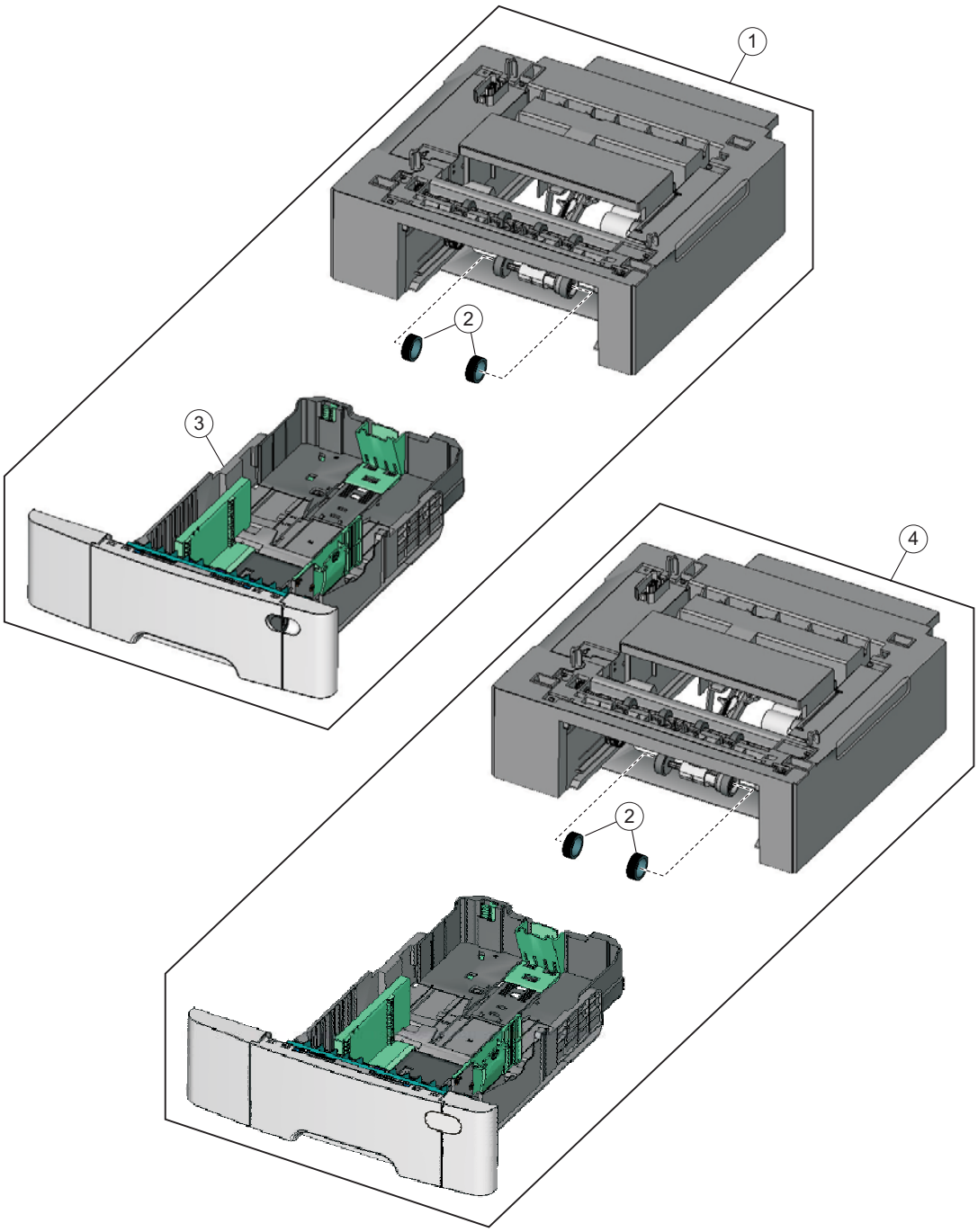
Assembly 6: Electronics 2



Assembly 6: Electronics 2

Asm-index	Part number	Units/ option	Units/ FRU	Description
6-1	40X5429	1	1	ITU paper path thermistor
2	40X5414	2	1	Toner patch sensors, left or right (one in package)
3	40X7046	1	1	Waste toner bottle contact block
4	40X5421	1	1	Imaging unit contact (Pogo pin)
5	40X5423	1	1	Cable packet, used for: A—AC power in B—Low-voltage power supply C—High-voltage power supply D—Fuser/S1 E—CMY/ K motors F—Option tray G—Fuser exit/narrow media/bin full H—Wire tie (1.0mm) NS—Tray present cable

Assembly 7: Media drawers and trays



Assembly 7: Media drawers and trays

Asm-Index	Part number	Units/ option	Units/ FRU	Description
7-1	40X6997	1	1	Optional 650-sheet duo drawer (complete)—X548 (includes a 100-sheet MPF)
2	40X5168	2	2	Pick tire replacement CRU
3	40X2285	1	1	650-sheet duo drawer tray assembly—X544n, X544dn, X544dw, X540n, X543dn (includes a 100-sheet MPF)
				Note: Use only with P/N 40X6997 drawer assembly)
4	40X8341	1	1	Optional 550-sheet drawer (complete)—X544n, X544dn, X544dw, X540n, X543dn
NS	40X2512	1	1	550-sheet MPF latch cover

Assembly 8: Options

Asm-Index	Part number	Units/ option	Units/ FRU	Description
8-NS	40X2254	1	1	115 V maintenance kit (fuser, ITU, duplex reference edge)
NS	40X2255	1	1	230 V maintenance kit (fuser, ITU, duplex reference edge)
NS	40X2261	1	1	100 V maintenance kit (fuser, ITU, duplex reference edge)
NS	40X5937	1	1	128MB DDR DRAM DIMM card assembly
NS	40X5938	1	1	256MB DDR DRAM DIMM card assembly
NS	40X5939	1	1	512MB DDR DRAM DIMM card assembly
NS	40X1455	1	1	64MB Flash card assembly
NS	40X5969	1	1	Korean font card assembly
NS	40X5970	1	1	Simplified Chinese font card assembly
NS	40X5971	1	1	Traditional Chinese font card assembly
NS	40X5972	1	1	Japanese font card assembly
NS	40X1368	1	1	USB cable, packaged (2 m)
NS	3049485	1	1	Field relocation package assembly

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